

9/960, 477

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	323	((514/294) or (514/296)).CCLS.	US-PGPUB; USPAT	OR	OFF	2005/07/08 16:53
L2	511	((546/94) or (546/98)).CCLS.	US-PGPUB; USPAT	OR	OFF	2005/07/08 16:53
L3	695	L1 or L2	US-PGPUB; USPAT	OR	OFF	2005/07/08 16:54
L4	79	L3 and pyrrolo	US-PGPUB; USPAT	OR	OFF	2005/07/08 16:54

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(URINARY(W) BLADDER)
L2 78 L1 AND (URINARY BLADDER)

=> s 12 not py>1998

09/ 960,477

3466653 PY>1998
L3 69 L2 NOT PY>1998

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L3 ANSWER 1 OF 69 MEDLINE on STN
ACCESSION NUMBER: 2003357542 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12891456
TITLE: [Effects of selective vegetative denervation on the
urinary bladder of the adult rat].
Efectos de la denervacion vegetativa selectiva en la vejiga
urinaria en la rata adulta. Consecuencias en la
incontinencia urinaria.
AUTHOR: Pascual J I; Insausti R; Gonzalo L M
CORPORATE SOURCE: Servicio de Urologia, Hospital de Navarra, Pamplona.
SOURCE: Anales del sistema sanitario de Navarra, (1997 Jan-Apr) 20
(1) 25-32.
Journal code: 9710381. ISSN: 1137-6627.
PUB. COUNTRY: Spain
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Spanish
FILE SEGMENT: NONMEDLINE; PUBMED-NOT-MEDLINE

ENTRY MONTH: 200403
 ENTRY DATE: Entered STN: 20030801
 Last Updated on STN: 20040316
 Entered Medline: 20040315

AB The present work is a study of the plastic capacity of the peripheral nervous system subjected to different aggressions in the case of 28 rats of the Wistar breed. They were divided into four groups: 1) sympathetic deafness (n=9); 2) parasympathetic deafness (n=9); 3) evaluation of regeneration (n=9); 4) control group (n=5). An image analyser was used to study the **acetylcholinesterase** (AChE) and Tyrosine Hydroxylase (TH) positive ganglionic neurones of the pelvic ganglion (GP) as well as the dorsal ganglions (GRD) compared with the control group. With group 3 a study was also made of the possible plasticity of the transacted axons using a wheat germ agglutinin conjugated-horseradish peroxidase (WGA-HRP) neurotracer. The statistical study was carried out by means of the analysis of variance (ANOVA), Fisher test and Scheffe method, with a p<0.05 taken as significant. The results show the predominant role of the pelvic nerve in the modulation of the plastic changes produced at the ganglionic level, with a lesser influence of the hypogastric nerve. Further studies are needed in order to define the specific role of each of these in the act of miction.

L3 ANSWER 2 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 1999054072 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9840337
 TITLE: The distribution of intramural nerves in **urinary bladder** after partial denervation in the female rat.
 AUTHOR: Uvelius B; Gabella G
 CORPORATE SOURCE: Department of Urology, Lund University Hospital, Sweden.
 SOURCE: Urological research, (1998) 26 (5) 291-7.
 Journal code: 0364311. ISSN: 0300-5623.
 PUB. COUNTRY: GERMANY: Germany, Federal Republic of
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199901
 ENTRY DATE: Entered STN: 19990216
 Last Updated on STN: 19990216
 Entered Medline: 19990129

AB We evaluated the degree of neuronal plasticity following a partial denervation of the rat **urinary bladder**. Using **acetylcholinesterase** staining we found that the postganglionic nerves from the pelvic ganglion reach the intact bladder as 1-4 nerve trunks on each side, slightly ventral and caudal to the ureteral orifices. Normally a few thinner nerves also reach the bladder posterolateral to the ureterovesical junction. The nerves ventral to the ureters run in the ventral longitudinal muscle layer as well-defined trunks with a pattern that does not differ much from one animal to another. The nerves reaching the bladder dorsolaterally innervate the dorsolateral aspects in a more irregular fashion. Some anastomoses are found across the midline between nerves from either side. This nerve pattern is already in place in newborn rats. After removal of the pelvic ganglion on one side in the adult rat the ipsilateral ventral nerves rapidly degenerate, whereas some dorsolateral nerves usually survive. Axons from the intact ventral nerves can be seen crossing over to the denervated side in the anastomoses. After 13 weeks the surviving ventral nerves, which normally run at some distance from the ventral midline, now run in the midline with equal amounts of ventral longitudinal muscle on either side, and with their branches evenly distributed to both sides. The same pattern is seen after 27 weeks. Unilateral ganglionectomy in 3-week-old rats leads to the same

changes in nerve distribution as in the adult rat. We conclude that there is a high degree of plasticity in the bladder innervation following a partial denervation, and that this plasticity includes the distribution of its main intramural nerve trunks.

L3 ANSWER 3 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 1998250439 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9590557
 TITLE: Colocalization of nitric oxide synthase and some neurotransmitters in the intramural ganglia of the guinea pig **urinary bladder**.
 AUTHOR: Zhou Y; Ling E A
 CORPORATE SOURCE: Department of Anatomy, Faculty of Medicine, National University of Singapore, Singapore.
 SOURCE: Journal of comparative neurology, (1998 May 18) 394 (4) 496-505.
 Journal code: 0406041. ISSN: 0021-9967.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199807
 ENTRY DATE: Entered STN: 19980713
 Last Updated on STN: 19980713
 Entered Medline: 19980701

AB The distribution of nitrergic neurons was investigated by using nicotinamide adenine dinucleotide phosphate-diaphorase (NADPH-d) histochemistry and nitric oxide synthase (NOS) immunohistochemistry in wholemount preparations of the **urinary bladder** in guinea pigs. Both NADPH-d+ and NOS+ neurons were located predominantly in the bladder base. Double staining showed that 70.9% of the NADPH-d+ neurons coexpressed NOS. **Acetylcholinesterase** histochemistry revealed that a majority of the intramural neurons were reactive, and about half of them (51.4%) were double labelled for NOS. Tyrosine hydroxylase-positive neurons were also distributed mainly in the bladder base but in a neuronal population that was separate from the preponderant NADPH-d+ neurons. Vasoactive intestinal polypeptide immunoreactivity was also detected in the some of intramural ganglion cells, in which 21.3% of them coexpressed NADPH-d. Calcitonin gene-related peptide and substance P immunoreactivities were confined to nerve fibers, often in close association with NADPH-d+ cells or extended along the blood vessels. These results have demonstrated the colocalization of NADPH-d and NOS in the majority of intramural ganglion cells. Many of the nitrergic neurons are apparently cholinergic, indicating that they are parasympathetic postganglionic neurons, and this underscores NO as the major neuromodulator in the parasympathetic nerves in the bladder walls. The localization of vasoactive intestinal polypeptide in nitrergic neurons suggests that the peptide may complement NO for regulation of micturition reflex. The close relationship of NADPH-d-reactive intramural neurons with calcitonin gene-related peptide and substance P fibers, most probably derived from dorsal root ganglion cells, suggests that NO released from the local neurons may exert its influence on the sensory neural pathways in the **urinary bladder**.

L3 ANSWER 4 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 1998122102 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9460770
 TITLE: Homotransplant of pelvic ganglion into bladder wall in adult rats.
 AUTHOR: Gabella G; Uvelius B
 CORPORATE SOURCE: Department of Anatomy, University College London, U.K.

SOURCE: Neuroscience, (1998 Mar) 83 (2) 645-53.
 Journal code: 7605074. ISSN: 0306-4522.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199803
 ENTRY DATE: Entered STN: 19980319
 Last Updated on STN: 19980319
 Entered Medline: 19980312

AB In these experiments a large portion of the pelvic ganglion of adult female rats was transplanted into the wall of the **urinary bladder** of the same animals. The morphology and fine structure of the transplants were studied in whole-mounts and in sections for light and electron microscopy, from two days up to four months after operation. The general architecture of the ganglion was preserved in all the transplants. The vascularization was re-established. Nerves grew out of the transplant and connections with the original intramural nerves of the bladder wall were established. All the synapses degenerated at the time of transplantation; new synapses began to reappear on the ganglion neurons in the oldest transplants. Although some neurons in the transplant degenerated during the first few days, the majority of neurons survived for the full length of the experiments (four months). Satellite glial cells and small intensely fluorescent cells had a similar structure and distribution as in control ganglia. The results show that the homotransplant of pelvic neurons into the bladder has a high rate of success, in terms of survival, maintenance of fine structure, growth and re-connections; these neurons of adult organisms display plastic and regenerative abilities.

L3 ANSWER 5 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 1998019306 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9353395
 TITLE: M4 muscarinic autoreceptor-mediated inhibition of 3 H-acetylcholine release in the rat isolated **urinary bladder**.
 AUTHOR: D'Agostino G; Barbieri A; Chiassa E; Tonini M
 CORPORATE SOURCE: Institute of Pharmacology, School of Pharmacy, University of Pavia, Pavia, Italy.
 SOURCE: Journal of pharmacology and experimental therapeutics, (1997 Nov) 283 (2) 750-6.
 Journal code: 0376362. ISSN: 0022-3565.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199712
 ENTRY DATE: Entered STN: 19980109
 Last Updated on STN: 19980109
 Entered Medline: 19971208

AB A pharmacological analysis was carried out in the rat **urinary bladder** to assess the nature of muscarinic receptors subtypes functionally involved in the negative feedback mechanism regulating acetylcholine (ACh) secretion from postganglionic cholinergic nerve terminals and in smooth muscle contraction. Bladder strips were preincubated with 3 H-choline, and the electrically evoked [3 H]ACh release was detected simultaneously with contraction in the absence of **acetylcholinesterase** inhibitors. The effects were compared of seven muscarinic antagonists on [3 H]ACh secretion (prejunctional effect) and muscle contraction (postjunctional effect). The rank order of postjunctional potencies (-log EC50) for the seven antagonists (atropine >

4-diphenylacetoxy-N-methylpiperidine methiodide (4-DAMP) > hexahydrosiladiphenidol hydrochloride (HHSiD) > triptitramine > pirenzepine > AF DX-116 > methocetramine) as well as their postjunctional affinity estimates (pA₂) are in keeping with the notion that muscarinic receptors responsible for bladder contraction belong to the M3 subtype. The M3 subtype-preferring 4-DAMP and HHSiD did not discriminate between prejunctional and postjunctional effects. The M2/M4 subtype-preferring antagonists triptitramine, methocetramine and AF-DX 116 were more potent in facilitating the evoked [³H]ACh release than in inhibiting the contractile response. The rank order of prejunctional potencies was atropine > 4-DAMP > triptitramine > HHSiD > methocetramine > AF-DX 116 > pirenzepine, indicating the involvement of M4 receptors. Furthermore, when potency relationship was determined by correlating prejunctional-log EC₅₀ values with published constants for cloned and natives muscarinic receptor subtypes, the correlations were significant for both M4 and M5 subtypes, but the best correlation found (P < .001) was for the M4 subtype. These findings suggest that the negative feedback mechanism inhibiting the release of ACh in the rat **urinary bladder** is mediated by prejunctional autoreceptors of the M4 subtype.

L3 ANSWER 6 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 97276408 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 9130161
 TITLE: Role of L- and N-type Ca₂₊ channels in muscarinic receptor-mediated facilitation of ACh and noradrenaline release in the rat **urinary bladder**.
 AUTHOR: Somogyi G T; Zernova G V; Tanowitz M; de Groat W C
 CORPORATE SOURCE: Department of Pharmacology, University of Pittsburgh, PA 15261, USA.. somo+pitt.edu
 CONTRACT NUMBER: NIDDK-45741 (NIDDK)
 SOURCE: Journal of physiology, (1997 Mar 15) 499 (Pt 3) 645-54.
 Journal code: 0266262. ISSN: 0022-3751.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199708
 ENTRY DATE: Entered STN: 19970825
 Last Updated on STN: 20000303
 Entered Medline: 19970812

AB 1. ³H-Noradrenaline (NA) and ¹⁴C-acetylcholine (ACh) released by electrical field stimulation were measured simultaneously in strips from the body of rat **urinary bladder**. 2. omega-Conotoxin GVIA (omega-CgTX; 20-100 nM) suppressed the non-facilitated transmitter release evoked by intermittent stimulation (IS), whereas nifedipine (1 microM) did not affect release. 3. Continuous electrical stimulation (CS) facilitated NA and ACh release via an atropine-sensitive mechanism. omega-CgTX reduced the facilitated release of NA (44% depression) but did not affect ACh release. Nifedipine depressed ACh release (43%) but not NA release. Combined administration of nifedipine and omega-CgTX (20 nM) produced a greater suppression of NA and ACh release (86 and 91%, respectively). 4. Maximal muscarinic facilitation of NA (5-fold) and ACh (17-fold) release occurred following administration of eserine, an **anticholinesterase** agent. Release of both NA and ACh was depressed by nifedipine (70 and 83%, respectively) but not by omega-CgTX. Combined application of omega-CgTX and nifedipine elicited a further depression of NA (95%) but not ACh release. 5. When NA and ACh release was facilitated with phorbol dibutyrate (0.5 microM), nifedipine inhibited ACh (67%) but not NA release, whereas omega-CgTX inhibited NA (73%) but not ACh release. Combined administration of both Ca₂₊ channel blockers did not elicit greater inhibition. 6. Bay K 8644, the L-type Ca₂₊ channel

activator, increased ACh release in a dose-dependent manner (up to 5-fold) but did not significantly change NA release. 7. Both omega-CgTX (20-100 nM) and nifedipine (100 nM-1 microM) significantly decreased (50-80%) the neurally evoked contractions of the bladder strips. 8. It is concluded that L-type Ca²⁺ channels play a major role in muscarinic facilitation of NA and ACh release in the **urinary bladder** but are not essential for non-facilitated release. Other types of Ca²⁺ channels, including N-type, are involved to varying degrees in non-facilitated and facilitated release under different experimental conditions.

L3 ANSWER 7 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 96164233 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 8595205
 TITLE: Intramural neurones appear in the **urinary bladder** wall following excision of the pelvic ganglion in the rat.
 AUTHOR: Uvelius B; Gabella G
 CORPORATE SOURCE: Department of Urology, Lund University Hospital, UK.
 SOURCE: Neuroreport, (1995 Nov 13) 6 (16) 2213-6.
 Journal code: 9100935. ISSN: 0959-4965.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199604
 ENTRY DATE: Entered STN: 19960424
 Last Updated on STN: 19960424
 Entered Medline: 19960418

AB The entire bladder of female rats was stained for **acetylcholinesterase** activity, in order to make visible all the intramural nerves. Ganglion neurones were never observed within the bladder wall of adult controls. In contrast, 2, 13 or 27 weeks after unilateral pelvic ganglion destruction a few intramural neurones were consistently observed along the remnants of nerves in the originally denervated half of the bladder. These neurones were often gathered into clusters of 5-15, inside a nerve or closely connected to it, with a faintly stained nerve leading to them and a more heavily stained nerve leading from them. The origin of the new intramural ganglion neurones is unknown, but they probably migrate after ganglionectomy, possibly from some accessory ganglion close to the bladder.

L3 ANSWER 8 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 96160127 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 8588301
 TITLE: A review of nonpesticide phosphate ester-induced neurotoxicity in cattle.
 AUTHOR: Coppock R W; Mostrom M S; Khan A A; Stair E L
 CORPORATE SOURCE: Environmental Toxicology Research, Alberta Environmental Centre, Vegreville, Canada.
 SOURCE: Veterinary and human toxicology, (1995 Dec) 37 (6) 576-9.
 Ref: 20
 Journal code: 7704194. ISSN: 0145-6296.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199603
 ENTRY DATE: Entered STN: 19960404
 Last Updated on STN: 19960404

Entered Medline: 19960327

AB Nonpesticide phosphate esters induce delayed neurotoxicity in cattle. The most common exposures are to complex mixtures of triaryl phosphate used in lubricating oils. Oral ingestion is most common, but dermal exposures have also occurred. Clinical signs of **cholinesterase** (ChE) inhibition may or may not be seen. Depending on the biochemical targets, the percent reduction in blood ChE is variable and can be < 30% of normal activity. Organophosphate ester-induced delayed neurotoxicity cannot be predicted by inhibition of blood ChEs. Signs of delayed neurotoxicity occur 2 to 25 d after exposure; these signs are neurologic deficiencies of the antigravity muscles and the muscles of the **urinary bladder** and larynx. Affected cattle may dribble urine and some may be mute. Signs of ChE inhibition generally are not observed in animals with neurological deficiencies. Pathologic findings are axonopathy and myelin degeneration of nerves with long axons located in both the peripheral and central nervous systems. In the spinal cord, location of the affected nerve tracts is variable. Degenerative changes occur in motor neurons. Calves are less susceptible to organophosphate ester-induced delayed neurotoxicity than cows. A dose of 500 mg triaryl phosphate/kg body weight will produce complete paralysis in a mature cow in 26 d.

L3 ANSWER 9 OF 69 MEDLINE on STN

ACCESSION NUMBER: 96078581 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7581475
 TITLE: Length density and total length of **acetylcholinesterase** positive nerves related to cystometry and in vitro studies of muscle strips in mini-pig **urinary bladder** after chronic outflow obstruction and recovery from obstruction.
 AUTHOR: Nielsen K K; Andersen C B; Kromann-Andersen B; Nordling J
 CORPORATE SOURCE: Department of Urology, Herlev Hospital, Denmark.
 SOURCE: Neurourology and urodynamics, (1995) 14 (4) 379-95.
 Journal code: 8303326. ISSN: 0733-2467.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199512
 ENTRY DATE: Entered STN: 19960124
 Last Updated on STN: 19960124
 Entered Medline: 19951207

AB Chronic partial bladder outlet obstruction was created in mini-pigs by implanting a 6-7 mm ring around the proximal urethra. After a median obstruction period of 63 days, the ring was removed and after a median recovery period of 60 days the animals were sacrificed. At each occasion stepwise cystometry, measurement of residual urine, muscle strips studies with electrical and carbachol stimulation, and stereological estimations of length density and total length of **acetylcholinesterase** positive nerves were performed. The results can be summarized as follows: (1) unchanged sensitivity of muscle strips to carbachol, but markedly decreased contractility and rate of contraction to carbachol, (2) no evidence of detrusor instability, but severely decompensated bladders in two pigs, (3) a significant increase in residual volume, (4) a pronounced decrease in length density and total length of **acetylcholinesterase** positive nerves, and (5) at field stimulation strips from some pigs showed increased sensitivity and contractility with high atropine and TTX resistance, while strips from the other pigs revealed decreased sensitivity and markedly decreased contractility to electrical stimulation. In general, most of the changes were markedly, though incompletely, reversed after recovery. Light and electron

microscopy of muscle strips showed no histological or ultrastructural changes during the experiments or after storing 1 day at 4 degrees C.

L3 ANSWER 10 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 96031107 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7579800
 TITLE: **Acetylcholinesterase**-positive afferent axons in mucosa of **urinary bladder** of adult cats: retrograde tracing and degeneration studies.
 AUTHOR: Wakabayashi Y; Kojima Y; Makiura Y; Tomoyoshi T; Maeda T
 CORPORATE SOURCE: Department of Urology, Shiga University of Medical Science, Japan.
 SOURCE: Histology and histopathology, (1995 Jul) 10 (3) 523-30.
 Journal code: 8609357. ISSN: 0213-3911.
 PUB. COUNTRY: Spain
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199512
 ENTRY DATE: Entered STN: 19960124
 Last Updated on STN: 19960124
 Entered Medline: 19951222

AB **Acetylcholinesterase** (AchE)-positive afferent axons in the mucosa of the cat **urinary bladder** were examined in the present experiments. Small-sized dorsal root ganglion cells containing AchE enzyme activity were labelled by injection of retrograde tracer (wheat germ agglutinin conjugated to enzymatically inactive horseradish peroxidase gold complex) into the bladder mucosa of adult cats. Results show that 48.9% (90/184) of the labelled ganglion cells possessed AchE enzyme activity. Following unilateral dorsal root ganglionectomy (L2-5, S1-3), a total of 6619 unmyelinated axon terminals were examined in the bladder mucosa, including 691 degenerating axon terminals. Percentages (8.6-16.1%) of degenerating axon terminals in the ganglionectomized animals (1, 2, 3, 10 and 21 days post-operated) were significantly higher than those of controls (3.1%) and the 60-day post-operated animals (3.2%). Approximately one-half (47.9%) of the degenerating axon terminals observed in the 1-21 day post-operated animals were AchE-positive. Further examination also disclosed that the population of the intact (not affected by ganglionectomy) AchE-positive axon terminals at 60 days (59.3%) was significantly greater than that of controls (45.6%). The AchE-positive terminals containing few synaptic vesicles were significantly increased in number in the 60 day post-operated cats. In conclusion the present study demonstrates that one half of afferent axons in the mucosa were AchE-positive. The increase in AchE-positive afferent axon terminals containing few synaptic vesicles may be derived from contralateral dorsal root ganglia resulting from sprouting following dorsal root ganglionectomy.

L3 ANSWER 11 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 95156307 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7853228
 TITLE: M1 muscarinic receptor-mediated facilitation of acetylcholine release in the rat **urinary bladder**.
 AUTHOR: Somogyi G T; Tanowitz M; de Groat W C
 CORPORATE SOURCE: Department of Pharmacology, University of Pittsburgh, PA 15261.
 CONTRACT NUMBER: MH 30915 (NIMH)
 SOURCE: Journal of physiology, (1994 Oct 1) 480 (Pt 1) 81-9.
 Journal code: 0266262. ISSN: 0022-3751.
 PUB. COUNTRY: ENGLAND: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199503
 ENTRY DATE: Entered STN: 19950322
 Last Updated on STN: 19950322
 Entered Medline: 19950310

AB 1. Release of [³H]ACh in response to electrical field stimulation (10 Hz) was measured in strips of rat **urinary bladder** and cardiac atrial tissues previously incubated with [³H]choline. 2. The volley output of [³H]ACh release was positively correlated with frequency of stimulation in the **urinary bladder** but negatively correlated in the atrium. 3. The quantity of [³H]ACh release was influenced by the pattern and duration of stimulation. Continuous stimulation (CS) with trains of 100 shocks released 10 times larger amounts of ACh than the same number of shocks presented as short trains of intermittent stimulation (IS): ten shocks per train with 5 s inter-train intervals. 4. The facilitation of transmitter release was antagonized completely by the administration of atropine (1 microM) or pirenzepine (0.05 microM), a selective M₁ antagonist. Eserine, an **anticholinesterase** agent, markedly facilitated ACh release induced by CS and IS. This effect was blocked by atropine. 5. Release of ACh from atrial strips did not exhibit CS-induced facilitation. Eserine decreased IS- and CS-evoked ACh release in the atrium. 6. It is concluded that continuous stimulation of postganglionic cholinergic nerves in the rat **urinary bladder** leads to the activation of M₁ muscarinic, facilitatory presynaptic receptors which enhance the release of ACh. Presynaptic facilitation may be an important mechanism for modulating neural input to the bladder during micturition.

L3 ANSWER 12 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 94259000 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7911080
 TITLE: **Urinary bladder** dysfunction in spontaneously diabetic Chinese hamsters.
 AUTHOR: Itoh H; Morikawa A; Makino I
 CORPORATE SOURCE: Second Department of Internal Medicine, Asahikawa Medical College, Japan.
 SOURCE: Diabetes research and clinical practice, (1994 Jan) 22 (2-3) 163-70.
 Journal code: 8508335. ISSN: 0168-8227.
 PUB. COUNTRY: Ireland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199407
 ENTRY DATE: Entered STN: 19940714
 Last Updated on STN: 20020212
 Entered Medline: 19940701

AB **Urinary bladder** dysfunction was investigated in spontaneously diabetic Chinese hamsters of the Asahikawa colony (CHAD). The wet weight of the **urinary bladder** was significantly increased in CHAD when compared with non-diabetic controls. In response to continuous infusion of physiological saline into the bladder under anesthesia, regular micturition was observed in controls. However, the threshold volume (i.e. the minimum volume at which rhythmic contraction appeared) was significantly increased and the amplitude of bladder contractions during micturition was decreased in CHAD aged 3-5 months (duration of diabetes, 0.6-2.2 months), leading to incomplete micturition. The frequency of micturition was also increased. Overflow incontinence was observed in all CHAD aged 13-15 months (duration of

diabetes, 10-14 months). **Acetylcholinesterase** staining and activity in the **urinary bladder** walls were both significantly decreased in CHAD compared with controls. The in vitro increment of **urinary bladder** pressure caused by stimulation with bethanechol was not different between CHAD and controls. These findings suggest that CHAD have **urinary bladder** dysfunction which is caused by autonomic neuropathy and not by detrusor myopathy.

L3 ANSWER 13 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 93082344 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1450843
 TITLE: Increase in presumptive sensory nerves of the **urinary bladder** in idiopathic detrusor instability.
 AUTHOR: Moore K H; Gilpin S A; Dixon J S; Richmond D H; Sutherst J R
 CORPORATE SOURCE: Gynaecological Urodynamic Unit, University of Liverpool.
 SOURCE: British journal of urology, (1992 Oct) 70 (4) 370-2.
 Journal code: 15740090R. ISSN: 0007-1331.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199301
 ENTRY DATE: Entered STN: 19930129
 Last Updated on STN: 19930129
 Entered Medline: 19930106

AB The density of subepithelial, presumptive sensory nerves in the bladder wall was assessed in 21 women with idiopathic detrusor instability and compared with the density of these nerves in 21 asymptomatic women, using a point-counting technique on sections of bladder biopsies stained for **acetylcholinesterase** activity. The mean value (+/- S.E.) for the amount of such nerves in patients with detrusor instability (91 +/- 13/mm²) was significantly greater than that from the control group (61 +/- 7/mm²). This suggests that a relative abundance of subepithelial sensory nerves may serve to increase the appreciation of bladder filling, giving rise to the frequency and urgency of micturition which are characteristic of patients with detrusor instability.

L3 ANSWER 14 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 92331722 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1385785
 TITLE: Effect of diabetes on the cholinergic enzyme activities of the **urinary bladder** and the seminal vesicles of the rat.
 AUTHOR: Wahba Z Z; Soliman K F; Kolta M G
 CORPORATE SOURCE: College of Pharmacy and Pharmaceutical Sciences, Florida A and M University, Tallahassee 32307.
 CONTRACT NUMBER: RR03020 (NCRR)
 SOURCE: Experimental and clinical endocrinology, (1992) 99 (1) 26-30.
 Journal code: 8302802. ISSN: 0232-7384.
 PUB. COUNTRY: GERMANY: Germany, Federal Republic of
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199208
 ENTRY DATE: Entered STN: 19920904
 Last Updated on STN: 19980206

Entered Medline: 19920818

AB Choline acetyltransferase (ChAT) and acetyl-**cholinesterase** (AChE) activities were determined in the seminal vesicles and in two regions of the **urinary bladder**, the detrusor muscle and sphincter-trigon in control and streptozotocin(STZ)-induced diabetic male Sprague-Dawley rats. In this study, STZ was administered (65 mg/kg, i.p.) to induce diabetes 14 days prior to sacrifice and enzyme analysis. Diabetic rats exhibited significant increase in both ChAT and AChE activities in the detrusor compared to the control animals. Significant increases in ChAT activity, however, were observed only in the seminal vesicles of diabetic animals compared to the control group. AChE activity in the seminal vesicles and sphincter-trigon region of the diabetic rats was not altered significantly. These findings suggest that urogenital complications associated with diabetes may be related to the dysfunction of the peripheral cholinergic system.

L3 ANSWER 15 OF 69 MEDLINE on STN

ACCESSION NUMBER: 92303044 MEDLINE

DOCUMENT NUMBER: PubMed ID: 1819171

TITLE: [Acetylcholinesterase and the ADH-dependent transport of water in the amphibian bladder].
Atsetilkholinesteraza i ADG-zavisimyi transport vody v mochevom puzre amfibii.

AUTHOR: Bagrov Ia Iu; Manusova N B; Ostretsova I B
Tsitologiya, (1991) 33 (11) 141-52.

SOURCE: Journal code: 0417363. ISSN: 0041-3771.

PUB. COUNTRY: USSR

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: Russian

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199207

ENTRY DATE: Entered STN: 19920731

Last Updated on STN: 19920731

Entered Medline: 19920723

AB It was found that acetylcholine (ACh) at the concentration of 10(-3) M inhibited ADH-stimulated water transport through the wall of amphibian **urinary bladder**. This effect was suggested to be caused by an interaction of ACh with **acetylcholinesterase** (AChE) rather than by a stimulation of the M- or N-cholinoreceptor. The inhibitory action of ACh was completely suppressed in the presence of various AChE inhibitors (physostigmine, proserine, armine, Gd-42, acridine-iodmethyle), while an inhibitor of **butyrylcholinesterase** (BuChE), AD-4, failed to affect it. In accord with this observation the activity of AChE (but not of BuChE) was demonstrated in the **urinary bladder** epithelium. Since, in addition to the hydrosmotic effects of pituitrine, 8-arginine-vasopressin or oxytocin, ACh blocked also effects of forskolin or cyclic AMP, one may conclude that it acts at some post-cyclic AMP production stage. AChE-dependent inhibition of the ADH-stimulated water transport decreased significantly when the serosal pH was raising from 7.2 to 8.0, but was augmented by serosal acidification (pH 6.8), whereas such pH alterations did not affect the activity of the epithelium AChE. The effect of ACh under consideration was suppressed by adding amiloride (10(-4) M) to the serosal solution. Similarly, the ACh effect was blocked by an inhibitor of Ca-dependent K⁺ channels, 4-aminopyrdine, which in addition prevented the inhibition of the ADH-stimulated water transport by the serosal acidification. It was noteworthy that some other K⁺ channel blockers (Ba²⁺, Cs⁺, tetraethylammonium, apamine, quinine) did not affect either the water transport or the antipituitrine effect of ACh. In conclusion, we suggest that the inhibitory action of ACh on the ADH-stimulated water transport in the **urinary bladder** is mediated through the

intracellular acidification resulting from ACh interaction with AChE. It is unlikely that the acidification is merely a consequence of the ACh hydrolysis, rather the ACh-AChE interaction induces directly an increase in the proton conductivity of the basolateral membrane of the **urinary bladder** epithelium.

L3 ANSWER 16 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 92299927 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1607601
 TITLE: Evidence for inhibitory nicotinic and facilitatory muscarinic receptors in cholinergic nerve terminals of the rat **urinary bladder**.
 AUTHOR: Somogyi G T; de Groat W C
 CORPORATE SOURCE: Department of Pharmacology, University of Pittsburgh, Pennsylvania 15261.
 CONTRACT NUMBER: DK 37241 (NIDDK)
 DK 42369 (NIDDK)
 MH 30915 (NIMH)
 SOURCE: Journal of the autonomic nervous system, (1992' Feb) 37 (2) 89-97.
 Journal code: 8003419. ISSN: 0165-1838.
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199207
 ENTRY DATE: Entered STN: 19920731
 Last Updated on STN: 19920731
 Entered Medline: 19920722

AB Cholinergic prejunctional modulatory receptors on parasympathetic nerves in the rat **urinary bladder** were studied by measuring 3H-acetylcholine (ACh) release in muscle strips from the bladder body. Electrical field stimulation markedly increased 3H-ACh overflow in strips preloaded with 3H-choline. Oxotremorine (1 microM), an M2 receptor agonist and DMPP (10 microM) a nicotinic (N) receptor agonist decreased the release of ACh (50% and 55% respectively); whereas McN-A 343 (50 microM) an M1 receptor agonist increased the release (33%), indicating the presence of three types of modulatory receptors. The **anticholinesterase** agent, physostigmine in concentrations of 1, 5 and 25 microM and neostigmine (5 microM) increased ACh release (44-710%). However a low concentration of physostigmine (0.05 microM) decreased release. Pirenzepine, an M1 muscarinic antagonist or atropine blocked the increased ACh release in physostigmine-treated strips, but in normal strips pirenzepine did not change release and atropine increased release. McN-A 343 or prolonged application (15 min) of DMPP increased ACh release (376% and 391% respectively) in physostigmine-treated strips. The response to McN-A 343 was blocked by pirenzepine. d-Tubocurarine (DTC), a nicotinic receptor blocker, enhanced ACh release in the presence of physostigmine but proved to be ineffective in normal preparations. These findings suggest that all three cholinergic receptors (M1 facilitatory, N inhibitory and M2 inhibitory) are activated by endogenous ACh in physostigmine treated preparations whereas only M2-inhibitory receptors are activated in normal preparations. It will be important in future studies to determine whether M1 and M2 mechanisms can also be activated under more physiological conditions in the bladder and whether they are present at other cholinergic synapses.

L3 ANSWER 17 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 92142399 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1736487
 TITLE: Effect of acute distension on cholinergic innervation of

AUTHOR: the rat **urinary bladder**.
 Lasanen L T; Tammela T L; Kallioinen M; Waris T
 CORPORATE SOURCE: Department of Surgery, University, Oulu, Finland.
 SOURCE: Urological research, (1992) 20 (1) 59-62.
 Journal code: 0364311. ISSN: 0300-5623.
 PUB. COUNTRY: GERMANY: Germany, Federal Republic of
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199203
 ENTRY DATE: Entered STN: 19920329
 Last Updated on STN: 19920329
 Entered Medline: 19920312

AB The effect of short-term **urinary bladder** distension on its cholinergic innervation was studied in Sprague-Dawley rats. Distension was induced for 3 h by forced diuresis and balloon outlet obstruction, and whole thick biopsy specimens were taken from the dome and lateral side of the anterior body 2, 7 and 21 days afterwards. The **acetylcholinesterase** (AChE) method was used to demonstrate the cholinergic nerves in the distended bladder wall. Cholinergic hypoinnervation was observed 7 days after the distension, persisting up to 21 days, although AChE-reactive nerves were then observed to be more numerous. The distribution of hypoinnervation was uneven, being more marked in the lateral side of the anterior body than in the dome. The distribution of AChE-reactive nerves varied even in the same biopsies, with areas of total hypoinnervation occurring next to areas of slightly diminished innervation. This was especially true 21 days after distension. The findings indicate transient damage to the cholinergic innervation, which may in turn explain the prolonged voiding difficulties often seen after catheterization of an overdistended bladder in a patient with urinary retention. The short-lasting effect of bladder dilatation therapy used to treat detrusor instability or interstitial cystitis may be due to the fairly rapid regeneration of cholinergic innervation.

L3 ANSWER 18 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 91250299 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2040570
 TITLE: Cytochemical demonstration of cholinergic, serotonergic and peptidergic nerve elements in *Gorgoderina vitelliloba* (Trematoda: Digenea).
 AUTHOR: McKay D M; Halton D W; Johnston C F; Fairweather I; Shaw C
 CORPORATE SOURCE: School of Biology and Biochemistry, Queen's University, Belfast, Northern Ireland, U.K.
 SOURCE: International journal for parasitology, (1991 Feb) 21 (1) 71-80.
 ENTRY DATE: Entered STN: 19910728
 Last Updated on STN: 19910728
 Entered Medline: 19910709
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199107
 ENTRY DATE: Entered STN: 19910728
 Last Updated on STN: 19910728
 Entered Medline: 19910709

AB Standard enzyme cytochemical and indirect immunocytochemical techniques have been used in conjunction with light and confocal scanning laser microscopy (CSLM) to visualize cholinergic, serotonergic and peptidergic nerve elements in whole-mount preparations of the amphibian **urinary-bladder** fluke, *Gorgoderina vitelliloba*. **Cholinesterase** (ChE) activity was localized in paired anterior ganglia, a connecting dorsal commissure and in the origins of the ventral

nerve cords. Cholinergic ganglia were also evident in shelled embryos in the uterus. Serotonin-immunoreactivity (IR) was more extensive than ChE activity and was identified in both the central and peripheral nervous systems. Serotoninergic nerve fibres were associated with the somatic musculature and female reproductive ducts. Antisera to nine mammalian peptides and one invertebrate (FMRFamide) peptide have been used to investigate the peptidergic nervous system in the parasite. Immunoreactivity was obtained to five peptides, namely pancreatic polypeptide (PP), peptide YY (PYY), neuropeptide Y (NPY), substance P (SP) and FMRFamide. Peptidergic nerve fibres were found to be more abundant than demonstrable cholinergic or serotoninergic nerve fibres. NPY-IR was identified only in the main components of the central nervous system. However, PP- and PYY-IR occurred in the anterior ganglia, dorsal commissure, main nerve cords and in numerous small varicose fibres that ramified throughout the worm. Additionally, PP-immunoreactive nerve fibres were found to innervate the musculature of the female reproductive tracts. Six sites of IR were found in the acetabulum, using antisera directed towards the C-terminal end of PP and PYY, and these matched with the distribution of six non-ciliated rosette-like papillae observed by scanning electron microscopy. SP- and FMRFamide-IR were identified in the CNS, and FMRFamide-immunopositive nerve fibres were also evident in association with the gonopore cirrus region and with the terminal excretory pore. Results are discussed with respect to possible roles for each of the neurochemical types.

L3 ANSWER 19 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 91086680 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1702131
 TITLE: Neuropeptide immunoreactivity and choline acetyltransferase activity in the mouse **urinary bladder** following inoculation with Semliki Forest Virus.
 AUTHOR: Moss H E; Tansey E M; Milner P; Lincoln J; Burnstock G
 CORPORATE SOURCE: Department of Anatomy and Developmental Biology, University College London, U.K.
 SOURCE: Journal of the autonomic nervous system, (1990 Sep) 31 (1) 47-56.
 Journal code: 8003419. ISSN: 0165-1838.
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199102
 ENTRY DATE: Entered STN: 19910322
 Last Updated on STN: 19980206
 Entered Medline: 19910207
 AB The effect of Semliki Forest Virus, a known central demyelinating agent and a proposed model for multiple sclerosis, on the innervation of the mouse **urinary bladder** has been examined 3, 6, 9 and 12 weeks after inoculation. Three weeks after Semliki Forest Virus inoculation, vasoactive intestinal polypeptide content of the bladder was reduced and the density of vasoactive intestinal polypeptide-immunoreactive nerves was decreased in the smooth muscle, but not in the mucosa. Choline acetyltransferase activity and neuropeptide Y and substance P content was normal, as was the pattern of innervation by **acetylcholinesterase**-containing and neuropeptide Y- and substance P-immunoreactive nerve fibres. Six weeks after Semliki Forest Virus inoculation, the choline acetyltransferase activity was significantly reduced. Between 6 and 9 weeks the level of vasoactive intestinal polypeptide in the bladder of Semliki Forest Virus-infected mice significantly increased, so that at 9 weeks it was higher than the control value. However, by 12 weeks both choline acetyltransferase activity and

vasoactive intestinal polypeptide content were normal. At this time, the substantial age-related increase in substance P content of the bladder was more pronounced in the Semliki Forest Virus-treated animals. Thus there are transitory changes in the innervation of the mouse bladder by vasoactive intestinal polypeptide-containing and cholinergic nerve fibres after exposure to a central demyelinating agent which may reflect changes in bladder dysfunction seen in multiple sclerosis patients.

L3 ANSWER 20 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 91083181 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2260778
 TITLE: Autonomic innervation of the equine **urinary bladder**.
 AUTHOR: Prieto D; Benedito S; Rivera L; Hernandez M;
 Garcia-Sacristan A
 CORPORATE SOURCE: Departamento de Fisiologia, Facultad de Veterinaria,
 Universidad Complutense de Madrid, Spain.
 SOURCE: Anatomia, histologia, embryologia, (1990 Sep) 19 (3)
 276-87.
 Journal code: 7704218. ISSN: 0340-2096.
 GERMANY: Germany, Federal Republic of
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199101
 ENTRY DATE: Entered STN: 19910322
 Last Updated on STN: 19910322
 Entered Medline: 19910129

AB The distribution and density of intrinsic autonomic nerve fibers and cells were studied in the equine **urinary bladder** by means of the peroxidase-antiperoxidase immunohistochemical method to localize tyrosine-hydroxylase (TH), and by means of a histochemical technique to detect **acetylcholinesterase** (AChE) activity. The results suggest that the equine **urinary bladder**, like that of other mammalian species, possesses a rich autonomic innervation which includes catecholaminergic and **acetylcholinesterase** positive nerves. At least a part of these nerve fibers have an intrinsic origin from ganglion cell bodies within the bladder wall.

L3 ANSWER 21 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 91021427. MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2220029
 TITLE: AChE-positive innervation of the ureters, **urinary bladder**, and urethra in pigs.
 AUTHOR: Lakomy M; Wasowicz K; Kaleczyc J; Chmielewski S
 CORPORATE SOURCE: Department of Animal Anatomy, Veterinary Faculty, Academy of Agriculture and Technology, Olsztyn, Poland.
 SOURCE: Zeitschrift fur mikroskopisch-anatomische Forschung, (1990) 104 (2) 316-26.
 Journal code: 0413637. ISSN: 0044-3107.
 GERMANY: Germany, Federal Republic of
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199011
 ENTRY DATE: Entered STN: 19910117
 Last Updated on STN: 19910117
 Entered Medline: 19901108

AB Histochemical method of KARNOWSKY and ROOTS (1964) was used to discover the AChE-positive nerves. These nerve fibres were found in all layers of all organs under study. The ureter was weakly innervated, while the

urinary bladder and the urethra possessed strong AChE-positive innervation. AChE-positive fibres were most abundant in the bladder trigone. Muscular membrane was the best supplied layer, both in the **urinary bladder** and in the urethra. Part of AChE-positive nerves was connected with the blood vessels in all organs under discussion.

L3 ANSWER 22 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 90277703 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2161851
 TITLE: Atropine-resistant transmission in partially depolarized rat **urinary bladder**.
 AUTHOR: Carpenter F
 CORPORATE SOURCE: Department of Pharmacology, University of Alabama, Birmingham 35294.
 SOURCE: Journal of autonomic pharmacology, (1990 Apr) 10 (2) 97-107.
 Journal code: 8106455. ISSN: 0144-1795.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199007
 ENTRY DATE: Entered STN: 19900824
 Last Updated on STN: 19900824
 Entered Medline: 19900716

AB 1. Phasic contractile responses of the intact rat **urinary bladder** to the muscarinic agonists carbachol and pilocarpine became nearly blocked as the concentrations were progressively increased to 200-500 microM. In contrast, tonic contractile responses remained elevated throughout progressive increases in agonist concentration. 2. Nerve-induced phasic contractions to 1 Hz stimuli were potentiated throughout progressive increases in the concentration of muscarinic agonists. However, these responses were more atropine sensitive than untreated controls and responses to 1 Hz stimuli were nearly abolished. 3. After inhibition of **cholinesterase**, the action of cholinergic transmitter released during prolonged nerve stimulation may extend to the tonic contractile state of the bladder and potentiate responses to 1H stimuli. Nerve-induced responses were more atropine sensitive than untreated controls. 4. Bladder tone was increased and nerve-induced contractions to 1-Hz stimuli were also potentiated in an elevated K⁺ environment. However, atropine sensitivity of nerve-induced responses was reduced. 5. Nerve-induced bladder contractions were linked to the tonic contractile state of the bladder muscle, controlled physiologically by muscarinic receptors. Since phasic contractile responses to muscarinic agonists were abolished at high concentrations by receptor desensitization, nerve-induced responses must be elicited under these conditions by a non-cholinergic transmitter.

L3 ANSWER 23 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 90163043 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2623782
 TITLE: Neuropathological examination of the alterations of the intrinsic innervation in multiple sclerosis cystopathy.
 AUTHOR: Van Poppel H; Stessens R; Lazarides M; Van Damme B; Carton H; Baert L
 CORPORATE SOURCE: Department of Urology, University Hospitals, Catholic University of Louvain, Belgium.
 SOURCE: Urologia internationalis, (1989) 44 (6) 321-6.
 Journal code: 0417373. ISSN: 0042-1138.
 PUB. COUNTRY: Switzerland

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199003
 ENTRY DATE: Entered STN: 19900601
 Last Updated on STN: 19900601
 Entered Medline: 19900327

AB Morphometric analysis of the innervation pattern of the stromal layer of the **urinary bladder** was done on biopsies from 88 patients with definite multiple sclerosis (MS). The biopsies were stained for **acetylcholinesterase** and for S100 protein, and a semiquantitative score was assigned. Nearly 30% of the samples showed increased immunoreactivity for S100, indicating Schwann cell hyperplasia. In 16% a decreased S100 immunoreactivity was found, the significance of which is unclear. More than 90% had normal **acetylcholinesterase** activity. No correlation could be demonstrated for age, sex, severity and duration of the disease, the presence of cystitis and type of detrusor dysfunction. The finding of altered S100 immunoreactivity in MS bladders could indicate that MS also affects the peripheral nervous system and is not limited to the central nervous system as classically described. This finding warrants further investigations.

L3 ANSWER 24 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 90118765 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2609926
 TITLE: Degeneration of adrenergic nerves in the **urinary bladder** during pregnancy.
 AUTHOR: Qayyum M A; Fatani J A; Abbas M O
 CORPORATE SOURCE: Department of Anatomy, College of Medicine, King Saud University, Riyadh, Saudi Arabia.
 SOURCE: Acta anatomica, (1989) 136 (4) 303-5.
 Journal code: 0370272. ISSN: 0001-5180.
 PUB. COUNTRY: Switzerland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 199002
 ENTRY DATE: Entered STN: 19900328
 Last Updated on STN: 19900328
 Entered Medline: 19900215

AB The adrenergic innervation of the **urinary bladder** of normal female and pregnant rats has been studied using a fluorescence histochemical method. The bladder is richly innervated by adrenergic nerve fibres as is evidenced by the presence of numerous adrenergic nerves in the adventitia, musculosa and submucosa. However, adrenergic nerve cells could not be observed. During pregnancy, adrenergic nerve fibres showed signs of degeneration, as most of the nerve fibres disappeared and the surviving fibres were much swollen. 10 days after parturition the pattern and density of adrenergic innervation became almost similar to those of the control animals.

L3 ANSWER 25 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 89194251 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2930797
 TITLE: Distribution and solubilization of the molecular forms of **acetylcholinesterase** in rat **urinary bladder** and sphincter.
 AUTHOR: Skau K A
 CORPORATE SOURCE: Division of Pharmacology and Medicinal Chemistry, College of Pharmacy, University of Cincinnati, OH 45267-0004.
 SOURCE: Biochimica et biophysica acta, (1989 Apr 6) 995 (2)

195-200.
 Journal code: 0217513. ISSN: 0006-3002.

PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198905
 ENTRY DATE: Entered STN: 19900306
 Last Updated on STN: 19900306
 Entered Medline: 19890524

AB The distribution and solubility of the molecular forms of **acetylcholinesterase** (acetylcholine acetylhydrolase, EC 3.1.1.7) were examined in adult, male rat bladder body and sphincter. Four distinct forms of the enzyme solubilized from bladder body were separated on sucrose density gradients. Two of the forms (A8 and A12) corresponded to asymmetric proteins and were solubilized with high ionic strength buffer. The other two forms represented globular forms. The smallest form (G1) was soluble in low ionic strength buffer without detergent. About 33% of the larger globular form (G4) required detergent for solubilization. There were only minor differences in the distribution of these forms in juvenile rat bladder and adult, female rat bladders. Sphincter tissue lacked one of the asymmetric forms but otherwise resembled the bladder bodies. These results demonstrate that some smooth muscle organs have significant amounts of asymmetric, as well as globular, forms of **acetylcholinesterase** and suggest that additional studies should be performed to characterize the enzyme in this and other smooth muscle systems.

L3 ANSWER 26 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 89150848 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3228673
 TITLE: Mechanism of action of nicotine in isolated **urinary bladder** of guinea-pig.
 AUTHOR: Hisayama T; Shinkai M; Takayanagi I; Toyoda T
 CORPORATE SOURCE: Department of Chemical Pharmacology, Toho University School of Pharmaceutical Sciences, Chiba, Japan.
 SOURCE: British journal of pharmacology, (1988 Oct) 95 (2) 465-72.
 Journal code: 7502536. ISSN: 0007-1188.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198904
 ENTRY DATE: Entered STN: 19900306
 Last Updated on STN: 19900306
 Entered Medline: 19890413

AB 1. Nicotine produced a transient contraction of isolated strips of guinea-pig **urinary bladder**. The response to nicotine was antagonized by the nicotinic receptor antagonist, hexamethonium but was insensitive to tetrodotoxin. 2. The nicotine-induced contraction was potentiated by the **cholinesterase** inhibitor, physostigmine, and was reduced to 50% and 70% by the muscarinic cholinoreceptor antagonist, atropine and the sympathetic neurone blocking drug, guanethidine, respectively. Chemical denervation with 6-hydroxydopamine abolished the inhibitory effect of guanethidine. Simultaneous treatment with atropine and guanethidine did not abolish the response to nicotine, but the degree of inhibition was comparable to that obtained with atropine alone. 3. The nicotine-induced contraction was insensitive to bunazosin and yohimbine (alpha 1- and alpha 2-adrenoceptor antagonists, respectively), and exogenously applied noradrenaline did not cause a contraction even in the presence of blockade of noradrenaline uptake mechanisms with desipramine

and normetanephrine and of beta-adrenoceptors with propranolol, suggesting a non-adrenergic nature of the sympathomimetic effect of nicotine in this tissue. 4. The nicotine-induced contraction in the presence of atropine was abolished after desensitization of P2-purinoceptors with alpha, beta-methylene adenosine 5'-triphosphate, a slowly degradable ATP analogue selective for P2-purinoceptors. By this desensitization, the response to ATP, but not to histamine, was also abolished. 5. A cyclo-oxygenase inhibitor flurbiprofen partially inhibited the nicotine-induced contraction. The degree of the inhibition was more pronounced in the presence of atropine than in its absence. Flurbiprofen antagonized the response to exogenously applied ATP in an unsurmountable manner, but not that to carbachol. (ABSTRACT TRUNCATED AT 250 WORDS)

L3 ANSWER 27 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 89107310 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3063536
 TITLE: Diabetic cystopathy: neuropathological examination of **urinary bladder** biopsies.
 AUTHOR: Van Poppel H; Stessens R; Van Damme B; Carton H; Baert L
 CORPORATE SOURCE: Department of Urology, University Clinics, Catholic University of Leuven, Belgium.
 SOURCE: European urology, (1988) 15 (1-2) 128-31.
 JOURNAL code: 7512719. ISSN: 0302-2838.
 PUB. COUNTRY: Switzerland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198902
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 19900308
 Entered Medline: 19890224

AB Neuropathological examination of bladder biopsies was done on 14 patients with severe insulin-dependent adult-onset diabetes and compared with the **acetylcholinesterase** and S100 staining of 38 control specimens. A decrease in **acetylcholinesterase** activity, due to axonal degeneration was found in all cases. An increase in S100 positivity was found in the majority and is due to Schwann cell proliferation as a regeneration attempt after demyelination or axonal degeneration. When **acetylcholinesterase** activity decreases and an S100 density increase is found in a patient with diabetes, this combination is highly suggestive of thorough diabetic cystopathy amenable to early symptomatic treatment.

L3 ANSWER 28 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 89045417 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3188288
 TITLE: Vasoactive intestinal polypeptidergic innervation of human **urinary bladder** in normal and pathological conditions.
 AUTHOR: Van Poppel H; Stessens R; Baert L; Van Damme B; Carton H
 CORPORATE SOURCE: Department of Urology, Katholieke Universiteit Leuven, Belgium.
 SOURCE: Urologia internationalis, (1988) 43 (4) 205-10.
 JOURNAL code: 0417373. ISSN: 0042-1138.
 PUB. COUNTRY: Switzerland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198812
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 19900308

Entered Medline: 19881207

AB **Urinary bladder** biopsies from 31 multiple sclerosis patients, 9 diabetics, 5 patients after transtrigonal phenolization and 20 control patients were stained for **acetylcholinesterase**, S100 and vasoactive intestinal polypeptide (VIP). The VIP immunoreactivity was not decreased in all neuropathic bladders and its depletion was not related to cholinergic depletion. There was no correlation between bladder over- or underactivity and VIP content. VIP can act as a modulator of detrusor function in normal conditions. The significance of its depletion in neurogenic bladders needs further elaboration.

L3 ANSWER 29 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 89020515 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2459826
 TITLE: Histochemical assessment of the intrinsic innervation of the normal **urinary bladder**.
 AUTHOR: Van Poppel H; Baert L; Stessens R; Van Stapel M J; Van Damme B; Carton H
 CORPORATE SOURCE: Department of Urology, University Clinics of the Katholieke Universiteit, Leuven, Belgium.
 SOURCE: Urologia internationalis, (1988) 43 (3) 145-8.
 Journal code: 0417373. ISSN: 0042-1138.
 PUB. COUNTRY: Switzerland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198811
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 19960129
 Entered Medline: 19881123

AB In order to assess the normal intrinsic innervation pattern, an enzyme histochemical **acetylcholinesterase** and two immunohistochemical (S100 protein and neurofilaments) stainings were done on 38 normal **urinary bladder** specimens. The nerve density was calculated as a mean number of nerve fibers counted per high power field. S100 staining after adequate fixation proved to be similar to the **acetylcholinesterase** technique, avoids freezing manipulation, is easier to read and permits normal conventional histological examination. Neuropathology of bladder biopsies is an easily available diagnostic method in current neurourological practice.

L3 ANSWER 30 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 88141482 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2893842
 TITLE: Regional noradrenergic and cholinergic neurochemistry in the rat **urinary bladder**: effects of age.
 AUTHOR: Johnson J M; Skau K A; Gerald M C; Wallace L J
 CORPORATE SOURCE: Division of Pharmacology, College of Pharmacy, Ohio State University, Columbus 43210.
 CONTRACT NUMBER: AG04622 (NIA)
 SOURCE: Journal of urology, (1988 Mar) 139 (3) 611-5.
 Journal code: 0376374. ISSN: 0022-5347.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
 ENTRY MONTH: 198804
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 19980206
 Entered Medline: 19880401

AB Neurochemistry of the base and body of the rat **urinary bladder** was compared for both adrenergic and cholinergic parameters using Fischer 344 rats. In bladder base and body, respectively, the concentration (pmol./mg. wet weight) of norepinephrine was 23.4 and 2.16, of acetylcholine was 26.7 and 18.3, and of choline was 96.7 and 199. The activity (nmol./mg. protein/hour) of tyrosine hydroxylase was 422 and less than 50, of monoamine oxidase was 80.6 and 126, of choline acetyltransferase was 17.4 and 11.5, and of **acetylcholinesterase** (nmol./mg. wet weight/hour) was 485 and 165. Treatment with alpha-methyl-p-tyrosine did not alter norepinephrine concentration in bladder base but decreased it by 27% in bladder body. Studies were also done to determine whether age-related changes exist in the adrenergic and cholinergic neurochemistry of the rat **urinary bladder**. Bladders from rats of 6-7, 15-17, and 22-24 mo. of age were examined. The only age-related differences noted were a progressive decrease in level of monoamine oxidase activity in both bladder regions and an increase in bladder base norepinephrine concentration from 6-7 to 15-17 mo. followed by a decrease at 22-24 mo. Overall, the results show marked regional variations in bladder neurochemistry which remain remarkably stable as the animals grow old.

L3 ANSWER 31 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 88119305 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3339764
 TITLE: Contraction of **urinary bladder** by central norepinephrine originating in the locus coeruleus.
 AUTHOR: Yoshimura N; Sasa M; Ohno Y; Yoshida O; Takaori S
 CORPORATE SOURCE: Department of Urology, Faculty of Medicine, Kyoto University, Japan.
 SOURCE: Journal of urology, (1988 Feb) 139 (2) 423-7.
 Journal code: 0376374. ISSN: 0022-5347.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
 ENTRY MONTH: 198803
 ENTRY DATE: Entered STN: 19900308
 Last Updated on STN: 19900308
 Entered Medline: 19880302

AB Studies were performed to elucidate the role of the locus coeruleus, which is rich in norepinephrine-containing cell bodies, in vesical function using alpha-chloralose anesthetized cats. Stimulation of the locus coeruleus caused contraction of the **urinary bladder**, which was not affected by transection of the bilateral hypogastric nerves, but blocked by intravenous administration of hexamethonium, a ganglion blocking agent. In animals with transected hypogastric nerves, the locus coeruleus-induced contraction was inhibited by intrathecal administration of phentolamine (**alpha-blocker**) and prazosin (**alpha 1-blocker**), but not affected by intrathecal sotalol (**beta-blocker**) or yohimbine (**alpha 2-blocker**). In animals treated with reserpine, the locus coeruleus-induced contraction was enhanced by intravenous application of L-dopa, a precursor of norepinephrine. These results suggest that norepinephrine derived from the locus coeruleus activated preganglionic neurons in the sacral intermediolateral nuclei via **alpha 1**-receptors, thereby producing **urinary bladder** contraction.

L3 ANSWER 32 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 88108459 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3484336
 TITLE: Quantitative study of phenol as a neurolytic agent in the **urinary bladder**.

COMMENT: Erratum in: Br J Urol 1988 Aug;62(2):193-4
 AUTHOR: Parkhouse H F; Gilpin S A; Gosling J A; Turner-Warwick R T
 CORPORATE SOURCE: Department of Urology, Middlesex Hospital, London.
 SOURCE: British journal of urology, (1987 Nov) 60 (5) 410-2.
 Journal code: 15740090R. ISSN: 0007-1331.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198803
 ENTRY DATE: Entered STN: 19900305
 Last Updated on STN: 19980206
 Entered Medline: 19880302

AB The endoscopic subtrigonal injection of a 6% aqueous phenol solution is an effective technique for denervating the bladder but its clinical usefulness is limited by unpredictable side effects. This study explored the possibility of making this procedure safer by comparing the neurolytic effects of different concentrations and carriers of phenol. Phenol in 2.5 and 5% solutions in three different carriers (water, glycerine and oil) was injected into the rectovesical pouch in 35 rats. After 3 weeks the bladders were excised and the effects on the density of **acetylcholinesterase**-positive nerves were assessed in each animal using morphometric techniques. The density of enzyme-containing nerves was reduced by 20% in the phenolised animals when compared with controls. This reduction was maximum when water was used as the carrier for either 2.5 or 5% phenol solutions.

L3 ANSWER 33 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 87169008 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3559868
 TITLE: **Urinary bladder innervation in children.**
 AUTHOR: Kullendorff C M; Elmer M; Alm P
 SOURCE: Journal of pediatric surgery, (1987 Mar) 22 (3) 240-2.
 Journal code: 0052631. ISSN: 0022-3468.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198705
 ENTRY DATE: Entered STN: 19900303
 Last Updated on STN: 19900303
 Entered Medline: 19870519

AB Muscle strips from the fundus, trigone, and distal ureter obtained from children at operation for vesicoureteric reflux were studied using histochemical and immunohistochemical methods, and electrical nerve stimulation in an organ bath. A rich supply of cholinergic nerves was found and the transmitter causing contraction of the detrusor muscle was regarded as being acetylcholine. The adrenergic innervation was very sparse except around the ureteric orifices. No contractile alpha-adrenoceptors could be detected but beta-receptor-mediated relaxation was found. The type was not beta 1 or beta 2, suggesting a third type of beta-receptor. Peptidergic nerves containing vasoactive intestinal peptide (VIP) were demonstrated in a few nerve terminals. No nerves containing enkephalin, somatostatin, or substance P were found. VIP affected the detrusor muscle, indicating a possible role as a modulator of transmitter action. Imipramine, used for enuresis, had no anticholinergic effect on the bladder in the doses used clinically. The anticholinergic and calcium antagonistic drug terodilane inhibited all muscle activity, making it suitable for treatment of diurnal enuresis.

L3 ANSWER 34 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 87001089 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3756405
 TITLE: The effect of age on the autonomic innervation of the **urinary bladder**.
 AUTHOR: Gilpin S A; Gilpin C J; Dixon J S; Gosling J A; Kirby R S
 SOURCE: British journal of urology, (1986 Aug) 58 (4) 378-81.
 Journal code: 15740090R. ISSN: 0007-1331.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198610
 ENTRY DATE: Entered STN: 19900302
 Last Updated on STN: 19900302
 Entered Medline: 19861030

AB Quantitative methods have been used to assess the amount of autonomic nerve in bladder biopsy samples from a group of "control" patients ranging in age from 20 to 79 years. Each patient included in the study was urodynamically normal and showed no subjective evidence of bladder trabeculation at cystoscopy. Using light microscopy, a significant linear reduction in the amount of **acetylcholinesterase**-positive nerve was observed with increasing age. Counts of axon profiles and measurement of smooth muscle cell cross-sectional areas in the electron microscope revealed a similar reduction in the amount of nerve per mm² of detrusor muscle tissue. These findings thus confirm that a real reduction in the number of nerve axons occurs with age and the light microscope results are not due merely to a reduction in the amount of nerve-associated **acetylcholinesterase**. The present study provides baseline data for future comparisons of the density of autonomic innervation in bladders which are functionally impaired.

L3 ANSWER 35 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 86220456 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3709660
 TITLE: A study of the contractile response to acetylcholine in human ileal and detrusor muscle: origin of the low efficacy of acetylcholine.
 AUTHOR: Rubinstein R; Nissenkorn I; Cohen S
 SOURCE: European journal of pharmacology, (1986 Apr 9) 123 (1) 145-53.
 Journal code: 1254354. ISSN: 0014-2999.
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198607
 ENTRY DATE: Entered STN: 19900321
 Last Updated on STN: 19900321
 Entered Medline: 19860710

AB In Krebs solution (3.36 mM Ca²⁺), the maximal contractile response of human ileal and **urinary bladder** detrusor muscle to acetylcholine (ACh) was 40-60% that to carbachol (CCh). The maximum response to ACh was reached at a bath concentration of about 1 microM and was maintained throughout a range extending to 100 microM. In the presence of neostigmine (0.1 microM), the maximum response to ACh reached the level of that of CCh. However, bioassay of bath concentrations of ACh at various points of the maximal response in the absence of neostigmine revealed only slight to insignificant diminution of the applied concentration of ACh. Joint application of ACh and CCh generated a dose-response profile consistent with a model of competitive antagonism

between a full agonist (CCh) and a partial one (ACh). Also, choline (100 microM) reduced the maximum response to ACh in the presence of neostigmine and that to CCh to 60-80% of control. These observations are consistent with a mechanism whereby intact **cholinesterase** together with its substrate ACh and possibly a breakdown product of ACh constitute a filter or diffusional barrier regulating the flow of agonist from the enzyme compartment to the receptor compartment.

L3 ANSWER 36 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 86206823 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 3085163
 TITLE: Some aspects of the development of the peripheral autonomic nervous system in the abdomen and the pelvis of the rat. Preliminary results.
 AUTHOR: Boekelaar A B; Bloot J
 SOURCE: Acta histochemica. Supplementband, (1986) 32 77-81.
 Journal code: 0061372. ISSN: 0567-7556.
 PUB. COUNTRY: GERMANY, EAST: German Democratic Republic
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198606
 ENTRY DATE: Entered STN: 19900321
 Last Updated on STN: 19900321
 Entered Medline: 19860610

AB The development of the relation of the left vagus nerve with the esophagus and the stomach and the relation of the pelvic plexus with the **urinary bladder** during the last week before birth has been studied by means of the AChE in toto method (Baljet and Drukker 1975, Bloot et al. 1984). It has been established that the gastric branches can be traced as far as the greater curvature until the 18th day. On the 18th day the stomach increases as much in size that on the 19th day these branches can not be traced so far any more. The growth pattern of the left vagus nerve, the stomach and the esophagus has been visualized graphically. In contrast to the previous observations on the stomach the **urinary bladder** increases gradually in size. However the nerve branches which run towards the bladder show a sudden increase in length on the 20th day after fertilization.

L3 ANSWER 37 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 86197340 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 2422242
 TITLE: Intramural neurons of the guinea-pig **urinary bladder**: histochemical localization of putative neurotransmitters in cultures and newborn animals.
 AUTHOR: Crowe R; Haven A J; Burnstock G
 SOURCE: Journal of the autonomic nervous system, (1986 Apr) 15 (4) 319-39.
 Journal code: 8003419. ISSN: 0165-1838.
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198606
 ENTRY DATE: Entered STN: 19900321
 Last Updated on STN: 19950206
 Entered Medline: 19860603

AB Histochemical methods have been used to study the distribution of putative neurotransmitters in the **urinary bladder** of newborn guinea-pigs and in cultures of intramural ganglia. Following the nicotinamide adenine dinucleotide (NADH)-diaphorase reaction which

specifically labels nerve cell bodies, up to 66 ganglia were observed in stretch preparations of the newborn **urinary bladder**. Each ganglion contained 2-50 nerve cell bodies. Vasoactive intestinal polypeptide was localized in a few nerve cell bodies of intramural ganglia both in *in situ* and culture preparations. In the *in situ* preparations it was widely distributed in nerve fibres to the muscle, being most dense at the base of the bladder, and in some mucosal epithelial cells. Somatostatin was contained in numerous neuronal cell bodies in the detrusor muscle both *in situ* and in culture. Extensively distributed varicose fibres were found in culture and in the muscle, submucous and mucosal layers *in situ*. Substance P immunofluorescence was demonstrated in a few neuronal cell bodies in ganglia both *in situ* and *in vitro*, particularly in those of the mucosa at the base of the bladder. In the *in situ* preparations varicose nerve fibres containing substance P were seen in the muscle coats with greatest density in the bladder base. Met-enkephalin-immunoreactive nerve cell bodies were not seen either *in situ* or in culture. Nerve fibres in *in situ* preparations were found largely enveloping neuronal cell bodies within the ganglia. Neither serotonin-immunoreactive nor catecholamine-containing neuronal cell bodies were seen in the *in situ* bladder preparation. However, some nerve cell bodies in culture showed positive staining, possibly as a result of selective uptake of serotonin and catecholamine known to be contained in foetal calf serum in the culture medium or possibly as the result of increased synthetic activity in certain neurones in the culture situation. In whole-mount stretch preparations, no serotonin-immunoreactive nerve fibres were seen, but catecholamine-containing small intensely fluorescent cells and nerve fibres were observed. **Acetylcholinesterase**-positive nerve cell bodies and nerve fibres were observed both *in situ* and culture preparations of the bladder. Quinacrine-positive nerve cell bodies (as an indicator of purinergic neurones) were found in numerous intramural neurones examined. *in situ*; however, under the culture conditions used, non-selective staining of all cell types occurred.

L3 ANSWER 38 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 85238433 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 6535870
 TITLE: Innervation of the rat **urinary bladder**.
 II. Effects of prostaglandins on the denervated detrusor muscle after bilateral pelvic ganglionectomy.
 AUTHOR: Yamada M
 SOURCE: Nippon Heikatsukin Gakkai zasshi, (1984 Dec) 20 (6) 483-91.
 Journal code: 7505718. ISSN: 0374-3527.
 PUB. COUNTRY: Japan
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: Japanese
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198508
 ENTRY DATE: Entered STN: 19900320
 Last Updated on STN: 19900320
 Entered Medline: 19850820
 AB The effects of prostaglandin (PG) F2 alpha and E2 on the denervated smooth muscle of the **urinary bladder** in female rats were studied *in vivo* by histochemistry and electron microscopy. The **urinary bladder** denervated by bilateral removal of the pelvic ganglion was markedly distended, being filled with urine. Daily intravenous administration of PGF2 alpha or PGE2 for 6 days following the operation showed that rats receiving PGE2 urinated remarkably more than those receiving PGF2 alpha. But the ultrastructural changes on the smooth muscle cells, such as dilated tubules of rough endoplasmic reticulum and large Golgi vacuoles, were more prominent in the PGF2 alpha administrated urinary bladders than in PGE2 administrated ones. On occasion,

cholinergic ganglion cells happened to be encountered in the muscular layer of a rat **urinary bladder**. These intramural ganglion cells and the cholinergic nerve fibers surrounding the cells displayed strong **acetylcholinesterase** activity, unaffected by bilateral pelvic ganglionectomy.

L3 ANSWER 39 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 85238432 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 6535869
 TITLE: Innervation of the rat **urinary bladder**.
 I. The morphological changes of intrinsic nerves of the **urinary bladder** after pelvic ganglionectomy.
 AUTHOR: Yamada M
 SOURCE: Nippon Heikatsukin Gakkai zasshi, (1984 Dec) 20 (6) 471-81.
 Journal code: 7505718. ISSN: 0374-3527.
 PUB. COUNTRY: Japan
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: Japanese
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198508
 ENTRY DATE: Entered STN: 19900320
 Last Updated on STN: 19900320
 Entered Medline: 19850820

AB The dual autonomic innervation of the **urinary bladder** of the female rat was studied using histochemical and light and electron microscopic methods. The bladder body in the normal state had a rich supply of cholinergic nerve fibers with a uniformly reticular pattern, but it was sparsely supplied with adrenergic nerves mainly associated with the blood vessels rather than the detrusor muscles. Seven days after the unilateral extirpation of the pelvic ganglion, most cholinergic and adrenergic fibers on the ipsilateral side of the bladder body disappeared markedly with the use of enzymatic and fluorescent histochemical techniques. The **acetylcholinesterase** activity of cholinergic fibers and the intensity of fluorescence of adrenergic fibers were somewhat restored 14 days after the operation. Seventy days postoperatively, it was found that the former had recovered in the relatively fine nerve fibers, while the latter had been almost completely restored, compared with the normal adrenergic innervation of the bladder body.

L3 ANSWER 40 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 85214014 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 4000307
 TITLE: [Cytophotometric study of catecholamines and **acetylcholinesterase** in neurons of the intramural plexus of the **urinary bladder** of the cat in controls and animals exposed to experimental conditions].
 Tsitofotometricheskoe issledovanie katekholaminov i atsetilkholinesterazy v neironakh intramural'nogo spleteniya mochevogo puzyria koshki v kontrole i pri nekotorykh eksperimental'nykh vozdeistviakh.
 AUTHOR: Lapsha V I; Bocharova V N
 SOURCE: Neirofiziologiya = Neurophysiology, (1985) 17 (2) 263-70.
 Journal code: 0231364. ISSN: 0028-2561.
 PUB. COUNTRY: USSR
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: Russian
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198507

09/ 960,477

ENTRY DATE: Entered STN: 19900320
 Last Updated on STN: 19900320
 Entered Medline: 19850702

AB The intramural plexus of the cat **urinary bladder** was studied with histochemical methods for catecholamines and **acetylcholinesterase**. Ganglia of the plexus showed differences in the number of neurons (5 to 150 cells). They were adrenergic, cholinergic or mixed. Section of pelvic nerves increased the amount of catecholamines in adrenergic neurons and fibres and decreased the **acetylcholinesterase** activity. Section of hypogastric nerves did not affect the catecholamine level and **acetylcholinesterase** activity.

L3 ANSWER 41 OF 69 MEDLINE on STN
ACCESSION NUMBER: 85068787 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6391088
TITLE: Functional evidence for sprouting or decentralized parasympathetic neurons in rat **urinary bladder**.
AUTHOR: Ekstrom J; Malmberg L
SOURCE: Acta physiologica Scandinavica, (1984 Sep) 122 (1) 7-15.
 Journal code: 0370362. ISSN: 0001-6772.
PUB. COUNTRY: Sweden
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198412
ENTRY DATE: Entered STN: 19900320
 Last Updated on STN: 19990129
 Entered Medline: 19841226

AB The pelvic nerve, carrying parasympathetic nerve fibres, distributes bilaterally in the rat **urinary bladder**. Preganglionic parasympathetic denervation (decentralization) on one side and postganglionic parasympathetic denervation on the other are followed by an initial decrease in acetylcholine forming capacity and in number of **acetylcholinesterase** positive nerves in the bladder. However, within a few weeks a marked recovery in acetylcholine synthesis and in number of nerves, based on collateral sprouting, occurs. In this study muscle strips of the rat **urinary bladder** exposed to the combined surgical procedure was studied. The strips were taken from "denervated" and "decentralized" halves of the bladder. Their contractile responses to methacholine and transmural electrical field stimulation were isometrically recorded in vitro. A supersensitivity to methacholine was found to have developed, of about the same degree, in the two halves 1 week postoperatively. In the denervated halves 4 weeks postoperatively, the supersensitivity was even more marked, whereas in the decentralized halves it tended to be less than after 1 week. The responses of denervated halves to electrical stimulation were reduced 1 week postoperatively. This was also the case for decentralized halves, although the reduction was not large enough to be significant. When examined 4 weeks postoperatively the responses, in particular in denervated halves, were enlarged compared to those 1 week postoperatively. The atropine-sensitive portion of the responses increased with time. Increases in contractile responses to electrical stimulation accompanied by a tendency to desensitization to methacholine are taken as functional evidence for outgrowth of decentralized parasympathetic neurones in the decentralized halves. (ABSTRACT TRUNCATED AT 250 WORDS)

L3 ANSWER 42 OF 69 MEDLINE on STN
ACCESSION NUMBER: 84138257 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6142106

TITLE: Neuronally mediated interactions between **urinary bladder** and internal anal sphincter motility in the cat.
 AUTHOR: Bouvier M; Grimaud J C
 SOURCE: Journal of physiology, (1984 Jan) 346 461-9.
 Journal code: 0266262. ISSN: 0022-3751.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198404
 ENTRY DATE: Entered STN: 19900319
 Last Updated on STN: 19950206
 Entered Medline: 19840425
 AB The effects of stimulation of vesical afferents on the electrical activity of the internal anal sphincter were studied in anaesthetized cats. Excitation of vesical afferents, either by electrical stimulation of nerves running at the vesico-ureteral junction or by bladder distension, produced (1) an increase in the electrical activity of the internal anal sphincter which was abolished by the **alpha-blocker** phentolamine (1.5 mg/kg, I.V.); (2) an inhibition of the excitatory response evoked in the internal anal sphincter by stimulation of one hypogastric nerve. This effect was blocked by naloxone (2 mg/kg, I.V.). These reflexes were abolished by hexamethonium (1 mg/kg, I.V.). Both reflexes were unaffected by section of sacral spinal roots (S1-S3) or by administration of atropine (0.1 mg/kg, I.V.). This excludes any participation of the parasympathetic nervous system. The excitatory and inhibitory reflexes were only slightly affected by section of the lumbar dorsal spinal roots (L1-L7) whereas they were strongly decreased after section of the corresponding ventral roots. The reflexes were abolished after section of the remaining hypogastric nerve. These results provide evidence for crossed reflexes between **urinary bladder** and internal anal sphincter which are achieved partly in the lumbar spinal cord and partly within the inferior mesenteric ganglion. Some of the vesical afferent nerve fibres responsible for these interactions presumably reach the spinal cord via the lumbar ventral spinal roots.

L3 ANSWER 43 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 84087488 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 6654742
 TITLE: Smooth muscle in the wall of the developing human **urinary bladder** and urethra.
 AUTHOR: Gilpin S A; Gosling J A
 SOURCE: Journal of anatomy, (1983 Oct) 137 (Pt 3) 503-12.
 Journal code: 0137162. ISSN: 0021-8782.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198402
 ENTRY DATE: Entered STN: 19900319
 Last Updated on STN: 20020212
 Entered Medline: 19840214

AB A series of human fetal and neonatal specimens ranging in age from the second month of intrauterine development to 4 1/2 years after birth has been examined using histological and histochemical techniques. In both sexes histologically differentiated smooth muscle cells were evident in the bladder wall from the 52 mm crown-rump length stage onwards--urethral smooth muscle was not distinguishable until 119 mm crown-rump length. In addition to relatively late differentiation, urethral smooth muscle was histochemically distinct from the **urinary bladder**

detrusor muscle. Sex differences in the arrangement and innervation of smooth muscle in the proximal urethra have also been observed, and these findings lend support to the presence of a pre-prostatic urethra sphincter. It seems likely that this sphincter acts principally to prevent reflux of ejaculate into the bladder during seminal emission.

L3 ANSWER 44 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 83268141 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 6875862
 TITLE: Correlation between **cholinesterase** inhibition and reduction in muscarinic receptors and choline uptake by repeated diisopropylfluorophosphate administration: antagonism by physostigmine and atropine.
 AUTHOR: Yamada S; Isogai M; Okudaira H; Hayashi E
 SOURCE: Journal of pharmacology and experimental therapeutics, (1983 Aug) 226 (2) 519-25.
 Journal code: 0376362. ISSN: 0022-3565.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198309
 ENTRY DATE: Entered STN: 19900319
 Last Updated on STN: 19970203
 Entered Medline: 19830920
 AB Muscarinic receptors, [¹⁴C]choline uptake and **acetylcholinesterase** (AChE) activity in central and peripheral tissues of guinea-pigs treated repeatedly with diisopropylfluorophosphate (DFP) were simultaneously determined. After repeated DFP (1 mg/kg) administration, there was a significant decrease in specific [³H] quinuclidinyl benzilate binding only in the striatum, ileal longitudinal muscle and **urinary bladder** among various tissues examined. Scatchard analysis revealed that the administration of DFP at 0.5, 1 and 2 mg/kg which depressed the tissue AChE by 50 to 90%, caused a dose-dependent decrease (20-50%) in striatal and ileal [³H]quinuclidinyl benzilate binding sites without a change in the dissociation constant. The lower dose (0.2 mg/kg) of DFP depressed significantly the AChE in both tissues by 30% but failed to alter their [³H]quinuclidinyl benzilate binding sites. High affinity uptake of [¹⁴C]choline in the striatum and ileal longitudinal muscle was significantly decreased by repeated administration of DFP at 0.5 and 1 mg/kg but not 0.2 mg/kg. The DFP-induced loss of striatal and ileal muscarinic receptors was effectively antagonized by a concomitant administration of physostigmine (0.5 mg/kg) and atropine (5 mg/kg). Also, these drugs antagonized the DFP-induced decrease in the striatal [¹⁴C]choline uptake. Thus, the present study has demonstrated that repeated DFP administration causes a specific decrease in muscarinic receptors and [¹⁴C]choline uptake in the striatum and ileal longitudinal muscle of guinea pigs which is closely associated with a considerable (more than 50%) depression of the tissue AChE. In addition, these adaptive changes by DFP were effectively antagonized by physostigmine and atropine.

L3 ANSWER 45 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 83212886 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 6682849
 TITLE: Histology and fine structure of the muscularis mucosae of the human **urinary bladder**.
 AUTHOR: Dixon J S; Gosling J A
 SOURCE: Journal of anatomy, (1983 Mar) 136 (2) 265-71.
 Journal code: 0137162. ISSN: 0021-8782.
 PUB. COUNTRY: ENGLAND: United Kingdom

09/ 960,477

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198307
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19900319
Entered Medline: 19830708

AB Study of biopsy specimens has revealed the presence of a muscularis mucosae in all regions of the human **urinary bladder**. The muscularis mucosae is discontinuous and consists of irregularly-arranged muscle bundles composed of relatively small-diameter smooth muscle cells. These cells are both morphologically and histochemically distinct from those forming the detrusor muscle, being rich in non-specific **cholinesterase** and glycogen. However, like detrusor muscle, the muscularis mucosae is richly supplied with **acetylcholinesterase**-positive nerve fibres. In the electron microscope, the constituent smooth muscle cells possess an extensive sarcoplasmic reticulum and large, peripheral clusters of dense glycogen granules; the myofilaments are confined to the central regions of the cells. Numerous intercellular junctions occur between adjacent cells while presumptive cholinergic nerve terminals containing small agranular and large granulated vesicles lie in close proximity to the muscle cells' surface.

L3 ANSWER 46 OF 69 MEDLINE on STN
ACCESSION NUMBER: 83179521 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6839094
TITLE: Intramural ganglia of the human **urinary bladder**.
AUTHOR: Dixon J S; Gilpin S A; Gilpin C J; Gosling J A
SOURCE: British journal of urology, (1983 Apr) 55 (2) 195-8.
Journal code: 15740090R. ISSN: 0007-1331.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198306
ENTRY DATE: Entered STN: 19900318
Last Updated on STN: 19900318
Entered Medline: 19830610

AB The arrangement and distribution of intramural autonomic ganglion cells have been examined in samples of the dome and lateral walls of the human **urinary bladder**. Ganglia were frequently observed in samples removed from either site and possessed histochemical characteristics to support their classification as presumptive cholinergic neurons. Unlike pelvic autonomic neurons, intramural bladder ganglion cells are not associated with noradrenergic (possibly inhibitory) preganglionic nerve terminals. The widespread distribution of ganglion cells within the bladder wall serves to frustrate surgical attempts to denervate detrusor smooth muscle. The outcome of such operative procedures is likely to result in decentralisation rather than denervation of the **urinary bladder**.

L3 ANSWER 47 OF 69 MEDLINE on STN
ACCESSION NUMBER: 83076459 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6816393
TITLE: Autonomic innervation of the urogenital system: adrenergic and cholinergic elements.
AUTHOR: McConnell J; Benson G S; Wood J G
CONTRACT NUMBER: 5K08 AM00824-02 (NIADDK)
NS06179-01 (NINDS)

SOURCE: Brain research bulletin, (1982 Jul-Dec) 9 (1-6) 679-94.
 Journal code: 7605818. ISSN: 0361-9230.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 198302

ENTRY DATE: Entered STN: 19900317
 Last Updated on STN: 19970203
 Entered Medline: 19830225

AB The major organs of the male urogenital (UG) system have been examined in various mammals, including man, using light and electron microscopic (EM) histochemical methods. For the light microscopic study, the **urinary bladder**, the vas deferens and the penis (corpora cavernosa and corpus spongiosum) were studied in the rat, cat, dog, monkey and man using a glyoxylic acid (GA) method modified for peripheral adrenergic nerve fibers, and a thiocholine method for **acetylcholinesterase** (AChE). Fine structural analysis was done on the vasa of rat, cat, monkey and man, and on the bladder and penis of cat, dog, monkey and man. Tissue was fixed in glutaraldehyde (GMO) as a control or in glutaraldehyde-dichromate (GDC) for the specific localization of norepinephrine (NE). All organs studied demonstrated numerous adrenergic nerve fibers throughout the muscular layers, in the connective tissue, and in the adventitia of most blood vessels. These fibers had a brilliant fluorescence when visualized with the GA method, and demonstrated many varicosities with small (400-600 Å) and/or large (800-1200 Å) granular vesicles in both control and GDC-fixed tissue examined with the EM. Evaluation of the vesicles with the analytical electron microscope (AEM) verified that those in the GDC-fixed tissue were chrome-positive, and, therefore, NE-containing. In the vas and penis, **acetylcholinesterase** (AChE)-positive nerve fibers were encountered less frequently at the light microscopic level than adrenergic fibers, and few typical cholinergic varicosities were seen in these organs with the EM. In the bladder, cholinergic nerves were seen with about the same frequency as adrenergic fibers in both light microscopic and EM preparations. Also observed frequently in each of the viscera were varicosities with large to very large (800-2000 Å) granular vesicles of the kind presently hypothesized to be peptidergic or purinergic. Few varicosities of the type considered sensory, with large (800-1200 Å) clear vesicles and numerous mitochondria, were observed in this tissue. Evidence from this study suggests that mammalian UG organs are innervated extensively by adrenergic nerves, and, excepting the bladder, have a limited cholinergic innervation; in the bladder, numerous fibers of each type can be found. In addition, another type of nerve fiber, perhaps peptidergic or purinergic, is found in large numbers in each of the organs studied and thus may represent a significant effector of autonomic regulation.

L3 ANSWER 48 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 82087808 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7315411
 TITLE: Outgrowth of cholinergic nerves in the rat **urinary bladder** either partially denervated or partially denervated and decentralized.
 AUTHOR: Alm P; Ekstrom J
 SOURCE: Acta physiologica Scandinavica, (1981 Jun) 112 (2) 179-83.
 Journal code: 0370362. ISSN: 0001-6772.
 PUB. COUNTRY: Sweden
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals

09/ 960,477

ENTRY MONTH: 198202
ENTRY DATE: Entered STN: 19900316
Last Updated on STN: 19900316
Entered Medline: 19820212

AB Unilateral excision of the pelvic ganglion caused a loss in the number of AChE-positive nerves in the rat **urinary bladder** both on the operated side and on the contralateral side, thus indicating a bilateral intramural distribution of cholinergic nerves derived from the pelvic nerve. In the course of the subsequent observation period (3-28 days) the AChE-positive nerves increased in number and in staining intensity and further, the nerves became ramified and twisted. Similar events were found to occur in the **urinary bladder** decentralized on one side and denervated on the other. The morphological findings indicate an outgrowth of cholinergic nerves by collateral sprouting. These findings are discussed in relation to previous physiological studies.

L3 ANSWER 49 OF 69 MEDLINE on STN
ACCESSION NUMBER: 82019852 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7282044
TITLE: [The influence of intravesical electrostimulation on the **urinary bladder** in animals (author's transl)].
Der Einfluss der transurethralen Elektrostimulation auf die Harnblase im Tierexperiment.
AUTHOR: Schwock G; Tischer W
SOURCE: Zeitschrift fur Kinderchirurgie : organ der Deutschen, der Schweizerischen und der Österreichischen Gesellschaft fur Kinderchirurgie = Surgery in infancy and childhood, (1981 Feb) 32 (2) 161-6.
Journal code: 8103794. ISSN: 0174-3082.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: German
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198111
ENTRY DATE: Entered STN: 19900316
Last Updated on STN: 19900316
Entered Medline: 19811122

AB The mechanism of the effects of endovesical electrostimulation on the bladder wall was examined in experimental animals. Histochemical examinations showed no changes of any kind in the activity of enzymes in the detrusor area. In the out-flow region of the bladder an increase in the activity of malatedehydrogenase, alpha-glycerophosphate-dehydrogenase, acid phosphatase and **acetylcholinesterase** were found histochemically. The effects of the current applied are confined to this region. This agrees with the results of clinical examinations.

L3 ANSWER 50 OF 69 MEDLINE on STN
ACCESSION NUMBER: 81202136 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7233658
TITLE: Autonomic innervation of rabbit **urinary bladder** following estrogen administration.
AUTHOR: Levin R M; Jacobowitz D; Wein A J
CONTRACT NUMBER: 1R01-AM-26508-01 (NIADDK)
SOURCE: Urology, (1981 May) 17 (5) 449-53.
Journal code: 0366151. ISSN: 0090-4295.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals

ENTRY MONTH: 198107
 ENTRY DATE: Entered STN: 19900316
 Last Updated on STN: 19970203
 Entered Medline: 19810720

AB The effects of estrogen administration on the autonomic innervation of the rabbit **urinary bladder** were studied. Immature female white rabbits were injected twice daily with estrogen (150 microgram./Kg.) for four consecutive days. Control animals received injections of vehicle alone. The adrenergic innervation was identified using the glyoxalic acid method of catecholamine histofluorescence. The cholinergic innervation was visualized utilizing specific **acetylcholinesterase** staining. Additionally, the effect of estrogen administration on the response of smooth muscle strips of **urinary bladder** to specific autonomic agonists was determined. Estrogen administration induced a moderate increase in the adrenergic innervation of the rabbit bladder detrusor, whereas no change could be observed in the cholinergic innervation. It should be noted, however, that whereas the adrenergic innervation in the bladder of the control animal was sparse, the cholinergic innervation in the bladder body was quite dense. Estrogen induced a marked increase in the response to alpha-adrenergic (methoxamine) and muscarinic cholinergic (bethanechol) agonists. No alterations were noted in the response to beta-adrenergic agonists (isoproterenol). These findings indicate that the **urinary bladder** responds as a target organ for estrogen-induced alterations in autonomic innervation.

L3 ANSWER 51 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 81107514 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7457937
 TITLE: The autonomic innervation of the human **urinary bladder**, bladder neck and urethra: a histochemical study.
 AUTHOR: Kluck P
 SOURCE: Anatomical record, (1980 Nov) 198 (3) 439-47.
 Journal code: 0370540. ISSN: 0003-276X.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198103
 ENTRY DATE: Entered STN: 19900316
 Last Updated on STN: 19900316
 Entered Medline: 19810327

AB The autonomic innervation of smooth muscle in fresh biopsy specimens of the human **urinary bladder**, bladder neck and urethra has been examined using specific neurohistochemical techniques. **Acetylcholinesterase**-containing nerve fibers have been demonstrated amongst the smooth muscle cells in all the biopsy samples. Enzyme-positive fibers formed a plexus, the density of which varied dependent upon the region from which the biopsy material was obtained. Catecholamine (noradrenaline)-containing autonomic nerve fibers were observed amongst smooth muscle cells of the vesico-urethra junction; other than for perivascular nerve plexuses. Noradrenergic fibers were absent from biopsy samples of other regions. Juxtamural, **acetylcholinesterase**-positive neurones were present in some samples, and a proportion of these cell bodies were closely related to noradrenergic nerve terminal regions. These findings are discussed in relation to those of other workers who have examined the innervation of the mammalian lower urinary tract.

L3 ANSWER 52 OF 69 MEDLINE on STN

ACCESSION NUMBER: 80238628 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 7190347
 TITLE: The extrinsic innervation of the pelvic organs in the female rat.
 AUTHOR: Baljet B; Drukker J
 SOURCE: Acta anatomica, (1980) 107 (3) 241-67.
 Journal code: 0370272. ISSN: 0001-5180.
 PUB. COUNTRY: Switzerland
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 198009
 ENTRY DATE: Entered STN: 19900315
 Last Updated on STN: 19900315
 Entered Medline: 19800928

AB The extrinsic innervation of the pelvic organs in neonatal and adult female rats is described. Mainly an *in toto acetylcholinesterase* method is used; moreover, *acetylcholinesterase* is demonstrated in sections. The hypogastric plexus is defined as the nerve plexuses caudal to the inferior mesenteric ganglia comprising the uterine cervical ganglia and various smaller ganglia. The origin of the hypogastric plexus is formed by the hypogastric nerves, bundles of nerve fibers from the lumbar and cranial part of the sacral sympathetic trunks, bundles of nerve fibers from the inferior mesenteric ganglia and the pelvic nerves. The origin of the caudal part of the hypogastric plexus is also constituted by the pudendal nerves. The uterine nerves are derived from the ovarian nerves, the uterine cervical ganglia, the hypogastric nerves and the lumbar sympathetic trunks. The nerves to the **urinary bladder** are derived from the ganglionated nerve plexuses in the mesometrium as well as from the uterine cervical ganglia. The vaginal nerves are derived from the uterine cervical ganglia, the ganglionated nerve plexus in the mesometrium and the pudendal nerve. The rectal nerves are derived from the ganglionated inferior mesenteric plexus, the uterine cervical ganglia and the pudendal nerves. The hypogastric plexus in the rat is in many respects more complex than is known from the literature. These anatomical data are relevant for instance to experimentators who use the pelvic autonomic plexuses in the rat as a model system for the analysis of autonomic neuronal regulation systems in mammals.

L3 ANSWER 53 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 79058819 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 213938
 TITLE: Cholinergic mechanisms in the rat detrusor muscle.
 AUTHOR: Elmer M
 SOURCE: Acta pharmacologica et toxicologica, (1978) 43 Suppl 2
 63-8.
 Journal code: 0370572. ISSN: 0001-6683.
 PUB. COUNTRY: Denmark
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197901
 ENTRY DATE: Entered STN: 19900314
 Last Updated on STN: 19980206
 Entered Medline: 19790126

AB The motor response of the **urinary bladder** to nerve stimulation is resistant to atropine, and it has been proposed that the nerves are non-cholinergic, but are possibly purinergic. In this review evidence is presented suggesting a cholinergic transmission in the rat detrusor muscle, part of the receptors being inaccessible to atropine. The rat bladder receives postganglionic cholinergic fibres not only from

the pelvic but also from the hypogastric nerves, some fibres passing outside the pelvic ganglia and some relaying distal to them. There is a functional overlap between the right and the left pelvic nerve, but the contractile response to stimulation of the hypogastric nerves is added to the pelvic nerve response with no functional overlap or antagonism.

L3 ANSWER 54 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 79058818 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 716939
 TITLE: Cholinergic innervation of the human urethra and **urinary bladder**: a histochemical study and review of methodology.
 AUTHOR: Alm P
 SOURCE: Acta pharmacologica et toxicologica, (1978) 43 Suppl 2 56-62.
 Journal code: 0370572. ISSN: 0001-6683.
 PUB. COUNTRY: Denmark
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197901
 ENTRY DATE: Entered STN: 19900314
 Last Updated on STN: 19900314
 Entered Medline: 19790126

AB The present work gives a survey of the various methods for the histochemical demonstration of cholinergic nervous structures. The theoretical background and the specificity and sensitivity of the various methods are compared. It is concluded that the histochemical localization of the cholinergic transmitter metabolizing enzyme acetylcholine esterase still probably is the best method, giving a fairly good reflection of the distribution of cholinergic nerves. In comparison with the Falck and Hillarp technique for the demonstration of adrenergic nerves this method is much less specific and sensitive. The present work describes a rich supply of cholinergic nerves in the human urethra and **urinary bladder** in comparison with the scanty adrenergic innervation. Various functional aspects of the cholinergic innervation are discussed.

L3 ANSWER 55 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 79021892 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 81076
 TITLE: [Effect of acetylcholine on the pituitrin induced osmotic flow of water through the wall of the frog **urinary bladder**].
 Vliianie atsetilkholina na vyzvannyi pituitrinom osmoticheskii tok vody cherez stenku mochevogo puzyria liagushki.
 AUTHOR: Bagrov Ia Iu; Manusova N B
 SOURCE: Biulleten' eksperimental'noi biologii i meditsiny, (1978 Sep) 86 (9) 321-4.
 Journal code: 0370627. ISSN: 0365-9615.
 PUB. COUNTRY: USSR
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: Russian
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197812
 ENTRY DATE: Entered STN: 19900314
 Last Updated on STN: 19900314
 Entered Medline: 19781227

AB The role of intercellular pathways in the ADH-dependent water transport was studied on the frog **urinary bladder** by means of acetylcholine (AC) and other cholinergic compounds. AC (10(-3) M) was

found to cause a strong suppression of the pituitrin-stimulated water flow. Analogous effect was produced by AC on the osmotic flow stimulated by cyclic adenosine monophosphate (cAMP) and theolin. The antipituitrin effect was not reproduced either by nicotine, nor by potent M-cholinomimetic agents (methylfurmethylide and F-2268), and was not prevented by M- and N-cholynolytic drugs (atropine, metacin, flaxedil, hexamethonium). However, the antipituitrin effect of AC was completely removed by the **anticholinesterase** drugs with different mode of action (eserine, proserine, armin, acridine iodomethylate, GD-42) in concentrations of 10(-6)--10(-3) M. It was concluded that the smooth muscles contraction with the subsequent closure of the intercellular spaces was not responsible for the antipituitrinic action of AC. This effect appears to be connected with **cholinesterase** activation. A possible role of the phosphoinositides in the water permeability regulation of the **urinary bladder** wall is discussed.

L3 ANSWER 56 OF 69 MEDLINE on STN

ACCESSION NUMBER: 78055972 MEDLINE

DOCUMENT NUMBER: PubMed ID: 929771

TITLE: A neurohistochemical and histological study of peripheral autonomic neurons of the human bladder neck and prostate.

AUTHOR: Gosling J A; Thompson S A

SOURCE: Urologia internationalis, (1977) 32 (4) 269-76.

Journal code: 0417373. ISSN: 0042-1138.

PUB. COUNTRY: Switzerland

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 197801

ENTRY DATE: Entered STN: 19900314

Last Updated on STN: 19900314

Entered Medline: 19780127

AB The histological structure and neurohistochemical properties of peripheral autonomic nerve cells which supply the bladder neck and male genital tract have been examined in the human infant. Two types of neuron have been recognised and their morphological features described. One type was rich in **acetylcholinesterase** but devoid of catecholamine and occurred in relation to the bladder neck and prostatic urethra. These cells probably represent presumptive cholinergic parasympathetic neurons which innervate the **urinary bladder**. The second type contained noradrenaline and supplied nerve fibres to the musculature of the genital tract. These ganglion cells correspond to the 'short' adrenergic neurons which have been described in other species.

L3 ANSWER 57 OF 69 MEDLINE on STN

ACCESSION NUMBER: 78005174 MEDLINE

DOCUMENT NUMBER: PubMed ID: 903213

TITLE: Abnormalities in pelvic visceral nerves. A basis for neurogenic bladder in the diabetic Chinese hamster.

AUTHOR: Dail W G; Evan A P; Gerritsen G C; Dulin W E

SOURCE: Investigative urology, (1977 Sep) 15 (2) 161-6.

Journal code: 0374747. ISSN: 0021-0005.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 197711

ENTRY DATE: Entered STN: 19900314

Last Updated on STN: 19900314

Entered Medline: 19771125

AB In order to determine whether bladder dysfunction and hydronephrosis in

diabetic Chinese hamsters are associated with nerve pathology, the pelvic visceral nerves of diabetic and normal hamsters were examined with histochemical and electron microscopic techniques.

Acetylcholinesterase activity was reduced in the nerves and on smooth muscle fibers in the **urinary bladder** of diabetic hamsters when compared to controls. Depression of enzyme staining was most marked in those hamsters with the most severe hydronephrosis. Frequent examples of aberrant myelination were found in the pelvic plexus and **urinary bladder** of diabetics. Many of these myelinated fibers exhibited wide periaxonal spaces lined by unusual processes of Schwann cells. An increase in the number of microtubules in axons and circular profiles of Schwann cells, which failed to enclose axons, gave evidence of axonal degeneration or Schwann cell injury in diabetic nerves. These findings suggest that pathologic changes in pelvic visceral nerves may underlie **urinary bladder** dysfunction in the diabetic Chinese hamster.

L3 ANSWER 58 OF 69 MEDLINE on STN

ACCESSION NUMBER: 77217117 MEDLINE

DOCUMENT NUMBER: PubMed ID: 17940

TITLE: Uropharmacology: v. choline esters and other parasympathomimetic drugs.

AUTHOR: Finkbeiner A E; Bissada N K; Welch L T

SOURCE: Urology, (1977 Jul) 10 (1) 83-9. Ref: 51
Journal code: 0366151. ISSN: 0090-4295.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 197708

ENTRY DATE: Entered STN: 19900314

Last Updated on STN: 19950206

Entered Medline: 19770825

AB Various parasympathomimetic drugs are discussed, including the choline esters, bethanechol, carbachol, methacholine chloride, and furtrethonium. Other cholinomimetic agents include muscarine, muscarone, arecholine, and pilocarpine. **Anticholinesterase** agents inhibit or inactivate **acetylcholinesterase** enzyme and thus result in a prolonged stimulation of cholinergic receptors by endogenous ACh. Bethanechol is the most widely used parasympathomimetic drug in the United States. Its action is mainly muscarinic with activity largely confined to the **urinary bladder** and to a lesser degree the gastrointestinal tract. It can be administered only subcutaneously or orally, and adequate dosage is necessary for a successful response.

L3 ANSWER 59 OF 69 MEDLINE on STN

ACCESSION NUMBER: 77154115 MEDLINE

DOCUMENT NUMBER: PubMed ID: 848307

TITLE: Adrenergic and Cholinergic Nerves of the Human Urethra and **Urinary Bladder**. A histochemical study.

AUTHOR: Ek A; Alm P; Andersson K E; Persson C G

SOURCE: Acta physiologica Scandinavica, (1977 Mar) 99 (3) 345-52.
Journal code: 0370362. ISSN: 0001-6772.

PUB. COUNTRY: Sweden

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 197705

ENTRY DATE: Entered STN: 19900313

Last Updated on STN: 19900313

Entered Medline: 19770520

AB The occurrence and distribution of adrenergic and acetylcholine esterase (AChE) positive nerves in the human urethra and **urinary bladder** were studied histochemically with the fluorescence method of Falck and Hillarp, and the copper thiocoline method of Koelle and Friedenwald. Both types of nerves were mainly confined to the layers of smooth muscle cells in the walls of the organs. In all parts of the urethra, there was a scanty supply of adrenergic nerves. Few adrenergic nerves were also found in the **urinary bladder**, except in the trigone area, where they were abundant. AChE-positive nerves were uniformly and richly distributed in the **urinary bladder**. Throughout the urethra the distribution of AChE-positive nerve fibres was uniform, but the number was clearly less than in the **urinary bladder**. No intramurally located adrenergic or AChE-Positive ganglion cells could be demonstrated.

L3 ANSWER 60 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 77113136 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 837006
 TITLE: Atropine resistance and muscarinic receptors in the rat **urinary bladder**.
 AUTHOR: Carpenter F G
 SOURCE: British journal of pharmacology, (1977 Jan) 59 (1) 43-9.
 Journal code: 7502536. ISSN: 0007-1188.
 PUB. COUNTRY: ENGLAND: United Kingdom
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197704
 ENTRY DATE: Entered STN: 19900313
 Last Updated on STN: 19900313
 Entered Medline: 19770425

AB The action of an **anticholinesterase** and an antimuscarinic drug upon nerve-induced contractions of the rat **urinary bladder** were examined during transmural stimulation at 20 Hz. Responses were graded in magnitude by limiting the duration of the stimulus trains. 2 Responses of low magnitude produced by short stimulus trains were unchanged by atropine; however, maximal responses resulting from long stimulus trains were diminished in magnitude and shortened in duration. 3 Responses of small magnitude elicited by short stimulus trains involve muscarinic receptors in close proximity to the neuroeffector junction and are resistant to atropine. 4 Maximal responses elicited by long stimulus trains involve 'junctional' muscarinic receptors as well as receptors located at the periphery of the junction; the 'extrajunctional' receptors are blocked by atropine. 5 Responses of low magnitude produced by short stimulus trains were unaffected by echothiophate; however, the duration of maximal responses resulting from the long stimulus trains was extended. 6 The inhibition of **cholinesterase** did not increase the occupation of muscarinic receptors by the transmitter; however, after large quantities of transmitter were released by the long stimulus trains the association between the receptors and acetylcholine was prolonged.

L3 ANSWER 61 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 77001568 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 963729
 TITLE: Histochemical light microscopic study of catecholamine containing paraganglia in the human pelvis.
 AUTHOR: Thompson S A; Gosling J A
 SOURCE: Cell and tissue research, (1976 Aug 10) 170 (4) 539-48.
 Journal code: 0417625. ISSN: 0302-766X.
 PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197611
 ENTRY DATE: Entered STN: 19900313
 Last Updated on STN: 19900313
 Entered Medline: 19761121

AB Histological and histochemical techniques have been employed to determine the structure and autonomic innervation of paraganglia located in the human pelvis. In foetal and early postnatal tissues, paraganglia formed rounded cellular masses which were frequently in company with the autonomic nerves and ganglia of the **urinary bladder** and other pelvic viscera. The constituent cells contained only small amounts of **cholinesterase** and were unrelated to enzyme positive autonomic nerves; **acetylcholinesterase** containing nerves were occasionally observed in the capsule and the fibrous septa of the pelvic paraganglia. In early postnatal specimens, pelvic paraganglia frequently contained single or multiple "pacinian-like" corpuscles, each possessing a central region which was rich in both acetyl and **pseudocholinesterase**. These structures were rarely observed within autonomic ganglia and were absent 4 1/2 years post partum. By means of a histochemical technique, pelvic paraganglia were found to contain catecholamine which was attributed to the presence of relatively large quantities of noradrenaline. These observations have been discussed with particular reference to the results of other studies on the autonomic innervation of paraganglia.

L3 ANSWER 62 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 75221893 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 1155165
 TITLE: Adrenergic and cholinergic innervation of the rat **urinary bladder**.
 AUTHOR: Alm Pelmer M
 SOURCE: Acta physiologica Scandinavica, (1975 May) 94 (1) 36-45.
 Journal code: 0370362. ISSN: 0001-6772.
 PUB. COUNTRY: Sweden
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197511
 ENTRY DATE: Entered STN: 19900310
 Last Updated on STN: 19900310
 Entered Medline: 19751101

AB The autonomic innervation of the rat **urinary bladder** was studied using histochemical methods and nerve stimulations. A sparse adrenergic innervation of the detrusor muscle was found. It was supposed to originate from long adrenergic neurones. The trigonum area had a rich supply of adrenergic fibres, probably derived from short adrenergic neurones. A uniformly rich supply of acetylcholine-esterase (AChE)-positive nerves was found in the WHOLE BLADDER. Postganglionic sympathetic denervation caused no detectable change of adrenergic or AChE-positive nerves in the bladder, while parasympathetic decentralization or denervation produced a total disappearance of adrenergic fibres. The AChE-positive nerves were appreciably reduced in number after parasympathetic decentralization and not detectable after postganglionic denervation. Neither adrenergic nor AChE-positive ganglion cells could be demonstrated in the bladder wall. Electrical stimulation of the hypogastric nerves or the pelvic nerves distal to the pelvic ganglia elicited contraction of the detrusor muscle. The responses were not affected by hexamethonium, dihydroergotamine or propranolol but were slightly reduced by guanethidine, reduced to about 40% by atropine and

potentiated by eserine. Stimulation of the pelvic nerve proximal to the pelvic ganglion was partially blocked by hexamethonium. It is concluded that the **urinary bladder** of the rat is supplied by postganglionic adrenergic fibres mainly via the pelvic nerves and only to a lesser extent via the hypogastric nerves. Probably cholinergic fibres pass to the bladder mainly via the pelvic nerves but also via the hypogastric nerves, having their cellbodies outside the bladder wall, partly proximal to the pelvic ganglia.

L3 ANSWER 63 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 75103357 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 46634
 TITLE: An **acetylcholinesterase** method for *in toto* staining of peripheral nerves.
 AUTHOR: Baljet B; Drukker J
 SOURCE: Stain technology, (1975 Jan) 50 (1) 31-6.
 Journal code: 0404535. ISSN: 0038-9153.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197505
 ENTRY DATE: Entered STN: 19900310
 Last Updated on STN: 19900310
 Entered Medline: 19750510
 AB Stomach, small intestine, uterus, **urinary bladder**, vagina, mesentery, mesometrium and joint capsule of rats, gall bladder, cystic duct and bile duct of dogs and uteri of young children are stained *in toto*. Procedure: Tissue is perfused with saline containing hyaluronidase, then pinned on a flat layer of Paraplast and fixed for 24 hr in cold sucrose-formol solution. Stomach, **urinary bladder** and gall bladder are also fixed *in toto*. Rinse for 2 days in cold 0.22 M sucrose in a sodium cacodylate buffer pH 7.2. Incubate in medium consisting of 60 mM acetate-buffer pH 5.0 or pH 5.6 (for human material only), 2 mM acetylthiocholine iodide, 15 mM Na citrate, 3 mM Cu sulphate, 0.5 mM K3Fe(CN)6, 5 times 10-4 M iso-OMPA, 1% Triton X 100 at 37C. Rinse in doubly distilled water. Dehydrate in glycerine/water mixtures of increasing glycerine content. Store in glycerine or delaminate under dissecting microscope. Delaminated specimens are mounted on gelatinized object glasses, cleared in xylene and coverslipped with Malinol. Specimens stored in glycerine can be studied microscopically. Stained specimens can also be embedded in Paraplast and sections can be studied after counterstaining.

L3 ANSWER 64 OF 69 MEDLINE on STN
 ACCESSION NUMBER: 74102036 MEDLINE
 DOCUMENT NUMBER: PubMed ID: 4591696
 TITLE: Autonomic innervation of canine **urinary bladder**. Cholinergic and adrenergic contributions and interaction of sympathetic and parasympathetic nervous systems in bladder function.
 AUTHOR: Raezer D M; Wein A J; Jacobowitz D; Corriere J N Jr
 SOURCE: Urology, (1973 Sep) 2 (3) 211-21. Ref: 30
 Journal code: 0366151. ISSN: 0090-4295.
 PUB. COUNTRY: United States
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 197404
 ENTRY DATE: Entered STN: 19900310

Last Updated on STN: 19900310
Entered Medline: 19740411

L3 ANSWER 65 OF 69 MEDLINE on STN
ACCESSION NUMBER: 74016301 MEDLINE
DOCUMENT NUMBER: PubMed ID: 4583816
TITLE: Autonomic innervation of canine **urinary bladder**. Cholinergic and adrenergic contributions and interaction of sympathetic and parasympathetic nervous systems in bladder function.
AUTHOR: Raezer D M; Wein A J; Jacobowitz D; Corriere J N Jr
SOURCE: Urology, (1973 Sep) 2 (3) 211-21. Ref: 30
Journal code: 0366151. ISSN: 0090-4295.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197312
ENTRY DATE: Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19731219

L3 ANSWER 66 OF 69 MEDLINE on STN
ACCESSION NUMBER: 72010885 MEDLINE
DOCUMENT NUMBER: PubMed ID: 5520362
TITLE: Differentiation of receptors for exogenous and endogenous acetylcholine in the **urinary bladder**.
AUTHOR: Chesher G B
SOURCE: Agents and actions, (1970 Mar) 1 (3) 128-32.
Journal code: 0213341. ISSN: 0065-4299.
PUB. COUNTRY: Switzerland
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197112
ENTRY DATE: Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19711209

L3 ANSWER 67 OF 69 MEDLINE on STN
ACCESSION NUMBER: 67218000 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6036933
TITLE: Histochemical and pharmacological studies of the innervation of the **urinary bladder** of the frog (*Rana temporaria*).
AUTHOR: McLean J R; Bell C; Burnstock G
SOURCE: Comparative biochemistry and physiology, (1967 May) 21 (2) 383-92.
Journal code: 7502545. ISSN: 0010-406X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 196710
ENTRY DATE: Entered STN: 19900101
Last Updated on STN: 19900101
Entered Medline: 19671020

L3 ANSWER 68 OF 69 MEDLINE on STN
ACCESSION NUMBER: 67183325 MEDLINE

09/ 960,477

DOCUMENT NUMBER: PubMed ID: 5972731
TITLE: Dual innervation of the mammalian **urinary bladder**. A histochemical study of the distribution of cholinergic and adrenergic nerves.
AUTHOR: el-Badawi A; Schenk E A
SOURCE: American journal of anatomy, (1966 Nov) 119 (3) 405-27.
Journal code: 0376312. ISSN: 0002-9106.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 196709
ENTRY DATE: Entered STN: 19900101
Last Updated on STN: 19900101
Entered Medline: 19670912

L3 ANSWER 69 OF 69 MEDLINE on STN
ACCESSION NUMBER: 64015688 MEDLINE
DOCUMENT NUMBER: PubMed ID: 14058061
TITLE: THE ROLE OF THE SPINAL GANGLION OF THE SACRAL NERVE ON THE FUNCTION OF THE **URINARY BLADDER**.
AUTHOR: SHISHITO S; SAITO T; IMABAYASHI K; NAKANO N; SHIRAIWA Y; AIZAWA M
SOURCE: Acta neurovegetativa, (1963 Jul 22) 25 435-52.
Journal code: 0162324. ISSN: 0375-9245.
PUB. COUNTRY: Austria
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: OLDMEDLINE; NONMEDLINE
ENTRY MONTH: 199612
ENTRY DATE: Entered STN: 19990716
Last Updated on STN: 19990716
Entered Medline: 19961201

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(FILE 'HOME' ENTERED AT 13:01:33 ON 08 JUL 2005)

FILE 'MEDLINE' ENTERED AT 13:01:48 ON 08 JUL 2005
L1 36084 S (?CHOLINESTERASE OR (A BLOCKER?))
L2 78 S L1 AND (URINARY BLADDER)
L3 69 S L2 NOT PY>1998

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COST IN U.S. DOLLARS SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST 16.78 16.99

STN INTERNATIONAL LOGOFF AT 13:04:49 ON 08 JUL 2005